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GOVERNMENT OF PAKISTAN

PLANNING BOARD

# THE FIRST FIVE YEAR PLAN

## 1955-60

(DRAFT)

VOLUME I

MAY, 1956

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## EXPLANATION OF TERMS USED

In Pakistan notations are expressed in 'Lakhs' and 'Crores' and rarely in 'Millions'. In this publication they are expressed in 'Millions'. In the chapter "Outline of the Plan" notations are shown in 'Lakhs' and 'Crores'. These and such other terms are explained below :—

*Notation*

One lakh (1,00,000) = One hundred thousand (100,000)
Ten lakhs (10,00,000) = One million (1,000,000)
One crore (1,00,00,000) = Ten million (10,000,000)

*Unit of measurement*

One maund = $82\frac{2}{7}$ lbs
One bale (cotton) = 392 lbs
One bale (jute) = 400 lbs

*Exchange rate*

One Pakistani rupee (or Re.) = 1 sh. 6 d. or 21 U.S. Cents

Rupees (or Rs.) 1,00,000 (lakh) = £. 7471 or $ 21,000

*Years*

Calendar year = January to December
Fiscal year = April to March
Trade year =
Agricultural year = } July to June.

**Administrative Units**

There are two Provinces, East Pakistan and West Pakistan. For administrative purposes each province is divided into 'divisions', and divisions into 'districts'. In East Pakistan a district is divided into sub-division, circle, thana, union and finally the village. In West Pakistan a district is divided into tehsils (or talukas) after which there is no uniformity except as regards village.

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PLANNING BOARD

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# THE FIRST FIVE YEAR PLAN

## 1955-60

(DRAFT)

VOLUME I

MAY, 1956

# LETTER OF AUTHORITY

PLANNING BOARD,

*Karachi, the 10th May*, 1956.

To

The Prime Minister,
Government of Pakistan,
Karachi.

Sir,

You have considered in Cabinet the " Outline of the plan " in draft and authorised the publication of the First Five Year Plan for inviting public comments. We submit the draft herewith and request your authority to release it.

We remain,
Your most obedient servants,

(Sd.) Zahid Husain
CHAIRMAN

(Sd.) Mafizuddin Ahmad
MEMBER

(Sd.) Said Hasan
MEMBER

I agree.

(Sd.) Mohamad Ali
PRIME MINISTER

# *ERRATA*

(Volume I)

*Note.*—This list is not intended to include all typographical errors, but only those which might give a misleading or inaccurate impression to the reader.

| Page | Para. and/or sub-para. | Line | Nature of correction |
|---|---|---|---|
| 2 | 3 | 3 | *Read* " technologically " *for* " technological ". |
| 23 | ... | 3 | *Read* " Tribal " *for* " Trible ". |
| 24 | Table 6 | Col. 4 | Against maize, *read* " 495 " *for* " 49 ". |
| 24 | ,, | ,, 5 | Against tea, *read* " 15 " *for* " 1.3 ". |
| 24 | ,, | ,, 5 | Against tobacco, *read* " 16 " *for* " 1.6 ". |
| 25 | 72 | 4 | *Read* " 80,000 " *for* " 50,000 ". |
| 25 | 72 | 4 | *Read* " 280,000 " *for* " 250,000 ". |
| 30 | Table 7 | 1 | *Read* " 1955-60 " *for* " 1955-56 ". |
| 31 | ... | ... | *Read* " WATER AND POWER DEVELOPMENT " *for* " Water and power development ". |
| 36 | ... | ... | *Delete* the heading " GENERAL ". |
| 39 | Table 14 | Col. 4 | Against Cigarettes, *read* " 1000.0 " *for* " 750.0 ". |
| 42 | 138 | 4 | *Read* " 220 million (22 crore) rupees " *for* " 232 million (23.2 crore) rupees ". |
| 44 | 147 | 2 | *Read* " 1500 " *for* " 3000 " |
| 44 | 148 | Table | Against telephone exchanges, *read* " 439 " and " 479 " *for* " 155 " and " 203 " respectively. |
| 44 | 148 | ,, | Against telephone connections, *read* " 37,000 " and " 75,000 " *for* " 35,000 " and " 70,000 " respectively. |
| 48 | 168 | 1 | *Read* " 16 " *for* " 14 ". |
| 48 | 169 | 1 | *Read* " Six " *for* " Seven ". |
| 49 | 175 | 13 | *Read* " 25 " *for* " 35 ". |
| 52 | 192 | 4 | *Read* " 11 million (1.1 crore) " *for* " 12 million (1.2 crore) ". |
| 55 | Table 20 | ... | Against Remedial establishments, *read* " 135.00 " *for* " 130.00 " |
| 55 | 209 | ... | *Read* " STATISTICS " *for* the heading " STATISTIC ". |
| 69 | 52 | 3 | *Read* " They " *for* " There ". |
| 75 | 11 | 5 | *Read* " (Chapter 7) " *for* " (Chapter 8) ". |
| 77 | 18 | 2 | *Insert* " in " *after* " is ". |
| 81 | 35 | 6 | *Read* " 47 to 67 " *for* " 44 to 64 ". |
| 89 | 1 | 3 | *Read* " patterns " *for* " patters ". |
| 116 | 49 | 14 | *Read* " abuse " *for* " above ". |
| 132 | 114 | 1 | *Read* " plane " *for* " plan ". |

[*P.T.O.*

| Page | Para. and/or sub-para. | Line | Nature of correction |
|---|---|---|---|
| 150 | 38 | Between 6 & 7 | *Add* " Table 5 ". |
| 150 | 38 (sub-head) | 7 (First word) | *Read* " Sources " *for* " Resources ". |
| 159 | Table 1 | ... | Against Currency & Mint (net) under 1948-49, *read* " —3.6 " *for* " 3.6 ". |
| 169 | 40 (sub-head) | ... | *Read* " non-development " *for* " none development ". |
| 173 | 56 | 4 | *Insert* " leaving a net balance of public saving of Rs. 1500 million " in between " rupees " and " which ". |
| 199 | 25 | 6 | *Read* " two-thirds " *for* " half ". |
| 214 | Table 5 | Last but one (Col. 3) | *Read* " 15.3 " *for* " 15.2 ". |
| 214 | Table 5 | Last but one (Col. 5) | *Read* " 11.5 " *for* " 11.4 ". |
| 214 | Table 5 | Last line (Col. 3) | *Read* " 13.6 " *for* " 13.7 ". |
| 216 | 33 | 1 | *Read* " Current " *for* " Currect ". |

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# INTRODUCTION

1. The Government of Pakistan announced the appointment of the Planning Board and its terms of reference in their Resolution No. 2(24)PG/53, dated 18th July, 1953, which is reproduced below:

" Ever since the attainment of Independence, the Government of Pakistan has been conscious of the need for rapid economic development of the country. The Government is aware of the aspiration of the people for a full life and is pledged to strive to achieve it.

" In spite of the grave economic and financial problems which beset the Government of Pakistan soon after Independence, a Development Board was established early in 1948 to deal with questions of economic development, and a number of projects were undertaken on the recommendation of the Board. In 1950 a Six-year Development Plan was formulated and embodied in the Colombo Plan for Co-operative Economic Development in South and South East Asia. This was essentially an outline plan and delineated only a broad pattern of development. The time has now come to prepare a more comprehensive National Plan of Development and the Government of Pakistan has decided to set up a Planning Board with the purpose and terms of reference set forth below :

" The economic and social objectives of Government's policy are well-known. They are to develop the resources of the country as rapidly as possible so as to promote the welfare of the people, provide adequate living standards, and social services, secure social justice and equality of opportunity and aim at the widest and most equitable distribution of income and property.

**Terms of reference :**

(i) To review the development that has taken place since Independence.

(ii) To assess the resources—material and human, which can be made available for development during the next 5 years beginning from April, 1954.

(iii) To prepare a national plan of development based on the fullest possible utilisation of these resources for implementation in a period of 5 years from 1st April, 1954, as a step towards the attainment of the economic and social objectives of Government's policy.

(iv) To make proposals regarding the administrative machinery best calculated to assure the successful implementation of the Plan.

(v) To make any other recommendations which in the opinion of the Board will contribute towards the success of the Plan.

" The Board will consist of Mr. Zahid Husain, till recently the Governor of the State Bank of Pakistan who will be the Chairman and two members whose names will be announced shortly.

" The Board will be assisted by such advisers and consultants as may be found necessary.

" It is hoped that the draft plan will be completed by the end of 1954 ".

2. It was subsequently decided that the five-year period to be covered by the Plan should commence from 1st April, 1955, instead of 1st April, 1954. Mr. Mafizuddin Ahmad and Mr. Said Hasan were appointed Members of the Board in July and August, 1954 respectively. Mr. Mafizuddin Ahmad was a member of the East Bengal Government during 1948-54. Mr. Said Hasan is a Member of the Board in addition to his duties as Secretary to the Government of Pakistan in the Ministry of Economic Affairs.

3. The Board began to recruit an expert staff in the latter part of 1953. By July, 1954, we had assembled the minimum number of Pakistani and foreign experts needed to make a start, and have worked since then to discharge the duties laid upon us.

4. In this first attempt to formulate a comprehensive and integrated national development programme, we have had to work within the situation as we found it, and to frame a Plan with the materials that were available. Ideally, the national planning organisation should have available to it plans prepared by all the ministries and departments concerned, for developments at the local, provincial and national levels, as well as their views regarding objectives to be aimed at in their respective spheres and the policies to be followed to gain these objectives. At the national level, the task should primarily be the assessment of total resources, the formulation of national policies, the determination of priorities after weighing competing claims against available resources, the selection of the best pattern of development and the co-ordination of the various development schemes in a national Plan. No such ideal arrangement was possible during the preparation of this draft Plan. Many of the proposals submitted to the Board were soundly conceived and fully worked out, but others were found to be incomplete and essential information was lacking. There were many essential purposes for which no proposals were received. Gradually a number of gaps were closed, but there remain many fields in which the Board have received neither schemes nor adequate information.

5. This situation is explained by the insufficient appreciation of planning in the country and the inadequacy of planning staffs in the Provinces or in various Departments at the Centre. There is no large portfolio in reserve of properly formulated schemes ready for execution, nor are there expert units for reviewing schemes with a veiw to maximum feasible development, or for relating requirements in particular sectors to the available physical resources. One of the important benefits of preparing a comprehensive development Plan has been to increase the awareness of the need for planning in the country. As the climate for planning becomes more favourable, development planning for particular fields, departments and areas, as well as for the Provinces and the country as a whole, will improve and draw forth greater thought and energy and acquire more realism.

6. The deficiencies in information were met in part by visits of the Board's officers to Provincial and State headquarters and to development sites and by discussions with the authorities concerned. The gaps in some sectors were filled in part by proposals of our own, or by setting aside block provisions in the Plan, against which schemes could be later prepared. In addition we have established a special reserve for East Pakistan, where the gap was found to be particularly large.

7. We visited Dacca and Lahore in April and June, 1955, to discuss with the East Bengal Government and the West Pakistan Administrative Council respectively the programmes we had tentatively proposed to include in the Plan. After the advent of the popular Government of East Bengal, the Board visited Dacca again in October, 1955, and in January, 1956, for further discussions. We also held discussions with representatives of industry and numerous individuals prominent in various departments of national life.

8. A sizeable programme of development was under way when the Board started work, and many development schemes were in various stages of implementation. Recognising the need for completing the work in progress as early as possible, we have included in the Plan all schemes that were under execution, a measure which was justified on their merits also. Other schemes have been started during the time the Plan was in preparation, generally after our comments had been taken into account. Necessarily, therefore, the Plan in its early years must largely reflect the pattern of the development already under way. The major changes in pattern and emphasis which we are recommending will take effect gradually during the Plan period.

9. In order to accomplish a smooth transition two special measures were taken for giving consideration to the views of the Board during the preparation of the Plan. First, the Government gave us the opportunity, while the Budget for 1955-56 was being prepared, to express our views on the proposals for development that were being considered for inclusion in the Budget. We studied these proposals in the light of our tentative views on the size, objectives and priorities of the Plan, and submitted our conclusions to the Government. They were given full weight in determining the size and pattern of development provided in the federal budget 1955-56. This process was repeated when the 1956-57 Budget was being prepared ; the Board's Report was then nearing completion. The 1955-56 and 1956-57 Budgets thus reflect in a limited measure the programmes embodied in the Plan. Full effect to our proposals can be given in 1956-57 after the approval of the Plan by the Government.

10. Second, co-ordination has been arranged between the Board and the Planning Commission, which has had the responsibility for examining development schemes and reporting to the Economic Council. The Planning Commission has kept the Board informed of the schemes it has received, and after our technical staff had been assembled, we were given the opportunity to express our views on all schemes placed before the Commission.

11. Successful planning at the national level requires reasonably accurate statistics in important fields, such as production, prices, national income, savings, investment, and manpower. Substantial progress has been made since independence in the collection, compilation, and publication of statistics, but much remains to be done. We were able to make our own rough estimates in some but not many cases where statistics were lacking. There are many gaps that need to be filled as the statistical organisations are expanded and improved in the future.

12. Some degree of freedom from anxious care about political problems is necessary for national planning, and a favourable environment has been created by the passing of the Constitution. But whatever the political conditions, planning and development are essential and cannot wait. Throughout most of the time that our draft Plan was in preparation, large political and administrative changes were in the offing. One of the most important was the amalgamation of the various administrative units of West Pakistan into a single Province. We had, by then, received most of the available material from the former administrative units ; this has made it necessary in some parts of the Report to refer to some of the special conditions and problems in terms of the former administrative areas. Furthermore, the Plan was prepared while the Constitution of the country was under consideration, and our Report is written largely on the basis of the administrative arrangements which existed before it came into force. Some adjustments will be required to take account of the changes in the responsibilities of federal and provincial governments ; but the size, the pattern and the contents of the programme will remain unaffected.

13. These conditions—lack of adequate planning arrangements in Central and Provincial departments and agencies, inadequate statistics, and rapidly changing political and administrative arrangements—have necessarily affected the Board's work. However, we present the first draft of the National Development Plan with the conviction that it is sound and complete in all major respects, and sets forth a realistic and essential programme for the attainment of rapid and widespread progress towards a diversified and dynamic economy.

14. This Report has been divided into five parts. Part I explains the social and economic objectives of Government's policy which have guided us in formulating the Plan and presents an outline of the Plan. In Part II, an attempt is made to state the fundamental concepts and methods of development embodied in the Plan. Part III states the Board's

views on the improvements in public administration required for the success of the Plan. Part IV assesses the financial resources—both internal and external—potentially available for development during the five-year period, and the likely course of population. Part V sets out the programmes of development, the priorities we recommend, and the major policies we advocate for the period of the Plan in each main field—agriculture, irrigation, power, industry, transport and social services.

15. This Report is a first draft of the five-year Plan, published in the expectation that extensive public discussion will point the way to improvement. Planning in a democratic society can be successful only through the participation of the people as a whole. They must be able to feel that the Plan embodies their hopes and aspirations, and is not dominated by sectional interests. Democratic planning must aim at satisfying the material, social and spiritual urges of the people. Only then can it win their full support and willing co-operation, born of their belief in the soundness and feasibility of the Plan and the honesty of purpose underlying it.

16. The Board, therefore, hopes for the widest possible consideration and discussion of the draft Plan. We shall welcome all comments and suggestions. We hope in particular that such institutions as chambers of commerce and industries, learned societies, universities, trade unions, local self-governing bodies, co-operative societies, and the Press will give us their views on this Report. We desire to make all possible improvements in the draft Plan before presenting our final report to the Government with the recommendation that it be adopted as the National Plan for 1955—60.

17. Even when adopted, the Plan will not embody a rigid programme to be followed without change for the whole period of the Plan. Planning is a continuous process and the Plan must continue to be improved as more information comes to hand and as the knowledge, wisdom and awareness of the people and the administration are brought increasingly to bear upon it. Development is a social process and its planning needs the collective wisdom and conscious co-operation of all elements in society. The Plan must be conceived as a basic framework of policies and programmes, sufficiently detailed to provide firm guidance for action in each field, but sufficiently flexible to permit adjustment to current conditions, especially at the time of Budget preparation. Such adjustments must, of course, be made only after systematic consideration and for good reason.

18. The preparation and adoption of a plan are the beginning, not the end, of the development process. A plan has meaning only if it is put into effect. The success of the Plan will depend upon the cultivators in the fields and the workers in the factories, upon businessmen and landowners, upon government officials and village leaders, upon public spirited citizens in all walks of life — in short, upon the many thousands of people in the country who have power or influence to commit human energy and material resources to action. If they understand, accept, and are guided by the Plan, we have a strong conviction that a new day of steady and purposeful progress will dawn for the country. The implementation of the Plan will present the Government, the administration and the people with some of their most difficult problems in the Plan period.

19. We take this opportunity of thanking the staff of the Board, both Pakistani and foreign, who have worked devotedly and whole-heartedly on this national assignment. We thank the Ford Foundation and Harvard University for the services of the foreign experts, whose contribution to the preparation of the Plan has been most valuable. We thank also the many officers of the Central Ministries and the Provincial Governments who responded to our many requests for help, in spite of their inadequate statistical and staff resources. Finally we express our gratitude to the many private citizens who have freely devoted their time and effort to assisting the Board in considering some of the difficult problems of development which confront the country to-day.

# PART I

# THE PLAN—OBJECTIVES AND OUTLINE

## Chapter 1

# SOCIAL AND ECONOMIC OBJECTIVES

## INTRODUCTORY

Our Terms of Reference require the formulation of a Plan of Development which would serve as a step towards the attainment of social and economic objectives of Government's policy. The Government resolution announcing the appointment of the Planning Board and its Terms of Reference describes these objectives in the following words :

> " The economic and social objectives of Government's policy are well known. They are to develop the resources of the country as rapidly as possible so as to promote the welfare of the people, provide adequate living standards, and social services, secure social justice and equality of opportunity and aim at the widest and most equitable distribution of income and property."

2. The Constitution which came into force on 23rd March, 1956 embodies directive principles concerning the principles of social uplift (Section 28) and of the social and economic well being of the people (Section 29). Section 28 directs that the State shall endeavour to :

(a) promote, with special care, the educational and economic interests of the people of the Special Areas, the backward classes and the Scheduled Castes ;

(b) remove illiteracy, and provide free and compulsory primary education within the minimum possible period ;

(c) make provision for securing just and humane conditions of work, ensuring that children and women are not employed in avocations unsuited to their age and sex, and for maternity benefits for women in employment ;

(d) enable the people of different areas, through education, training and industrial development, to participate fully in all forms of national activities, including employment in the service of Pakistan ;

(e) prevent the prostitution, gambling and the taking of injurious drugs ; and

(f) prevent the consumption of alcoholic liquor otherwise than for medicinal and, in the case of non-Muslims, religious purposes.

Section 29 directs that the State shall endeavour to :

(a) secure the well-being of the people, irrespective of caste, creed, or race by raising the standards of living of the common man, by preventing the concentration of wealth and means of production and distribution in the hands of a few to the detriment of the interest of the common man, and by ensuring equitable adjustment of rights between employers and employees, and landlords and tenants ;

(b) provide for all citizens, within the available resources of the country, facilities for work and adequate livelihood with reasonable rest and leisure ;

(c) provide for all persons in the service of Pakistan and private concerns social security by means of compulsory social insurance or otherwise ;

(d) provide basic necessities of life, such as food, clothing, housing, education and medical relief, for all such citizens, irrespective of caste, creed or race, as are permanently or temporarily unable to earn their livelihood on account of infirmity, sickness or unemployment ;

(e) reduce disparity, to a reasonable limit, in the emoluments of persons in the various classes of service of Pakistan; and

(f) eliminate *riba* as early as possible.

3. Planning in the present stage of our society means the formulation of programmes and policies designed to lead it by a consciously directed and accelerated movement from a largely technological backward and feudalistic stage into the modern era of advanced technology now on the threshold of atomic age. Movement and change constitute the law of life. The problem is to regulate and adapt the change according to our own values of life. Resistance to change generates tensions which can lead to disastrous consequences. It should, therefore, be absorbed in an orderly and peaceful manner but so that it contributes to our individual growth as well as the growth of the community in keeping with our own basic values. Economic development is a part of this general process of social change, and planning signifies our intention to influence, regulate and adapt it along the lines desired by us.

4. Industrialism has been in progress for nearly two centuries and has revolutionised the social conditions of many countries in Europe, America and Asia. Scientific and technological advances have provided the means for banishing poverty, unemployment, disease and the degrading labour rendered in slavery, serfdom and other forms of exploitation. The dignity of man and the high worth of his personality which were cherished by Muslims as religious doctrines have become realisable values. The powers of control acquired over natural resources provide man with means to a life free from material care and afford him leisure and opportunity to engage in cultural pursuits to achieve a fuller, higher and more satisfying and creative life.

5. The process of social change is uninterrupted and the problem of planning in our country, in addition to influencing and regulating it, is to devise and apply methods of accelerating it so that the deficiencies accumulated over centuries are over-come in as short a period as possible within the limits of physical and human resources which providence has granted us. In this process of swift transition to a new social order our own basic values of life must be preserved, re-affirmed and promoted. We must effectively regulate and dominate the process of change instead of being its helpless victims carried by the current to unknown destinations.

6. Political independence has created the demand as well as the opportunity to initiate a rapid process of social and economic change. A considerable amount of work has been accomplished already in the economic field. The people rightly desire and insist upon a rapid economic as well as social change. They want to see poverty and illiteracy banished. They want to end the era in which inequalities of opportunity and unjustly wide disparities in income and wealth prevail. They demand a recognition of the right to adequate means of living, right to work, right to education and the right to reasonable standards of health. These urges are agitating the hearts of our men and women in common with those of other countries. All democratic philosophies of to-day concede these rights as the minimum of social and economic objectives attainable immediately or gradually as resources permit. We believe that their recognition would do no more than affirm and fulfil the basic principles and values enunciated by Islam concerning the status and dignity of man and his ultimate answerability for his actions. With the increasing availability of resources resulting from economic development, these principles can be progressively incorporated in the structure of our social order. The process would be long but there should be no ambiguity about the direction and the objective. In any plans prepared for guiding the progress of social change they must be kept in the fore-front. We have attempted to do so.

7. The scarcity of resources and the need of making orderly and peaceful transition are factors which necessarily delay the attainment of our goals. We have to deploy our resources to achieve maximum results in order to increase our resources as rapidly as possible. The fulfilment of the rights of common man in the economic and social spheres as recognised in the Directive Principles of State Policy laid down in the Constitution would

be a gradual process. But failure to fulfil them to the extent our resources permit from time to time would be equivalent to denial. In formulating our proposals we have kept these rights prominently in view. Independent Pakistan can have little meaning and evoke little enthusiasm until the millions of its men and women in the farms, in the factories and offices find the way open to a life of freedom, honour and dignity. For its successful accomplishment this long and arduous process would need generosity, vision and courage from those holding economic, social and political power in their hands ; and patience, perseverance, discipline and understanding from others. Both must be inspired with patriotism and the determination to see a stable and prosperous Pakistan. All must give of their highest and the best in the service of present and future generations.

8. The process must be facilitated by lifting man-made artificial barriers. Outdated institutions which serve no social purpose should be discarded or re-ordered. Favourable conditions should be provided for new institutions to emerge and grow. While the Government must not impose new institutions or force their growth, they must assist them to grow and flourish in the course of national development and protect them from unjust treatment.

9. There is a rapidly increasing demand in the country for the expansion and improvement of facilities for education, medical services, housing and social and labour welfare. Their expansion and improvement constitute one of our main social objectives. They furnish the most necessary means of transforming the environment for the benefit of common man. It is one of the functions of planning to suggest a balance in the allocation of resources to economic and social service sectors. The resources for expanding and improving these beneficial services are provided primarily by agricultural and industrial development. Due to the limitation of resources the Government have often to take difficult decisions. In countries with centrally controlled economics, investments were made in the early stages of development very sparingly in social services, except on education and training directly needed for the economic development programme. Historically even the countries believing in democratic ideology went through similar stages of social and economic development. Because of the urgency of maximum stimulation of agricultural and industrial development it would not be unreasonable to suggest that until the resources appreciably increase the expansion of social services should remain restricted. We have not, however, adopted this approach. In the past the Provincial Governments have made large increases in social services, in particular, education and health. This is inevitable in a democratic country where the Government have to respect the wishes of the people and respond to them, to the utmost extent of national resources. We have made allocations for social services which we think are the maximum that can be usefully employed. We have proposed the organisation of two new services, Social Welfare and Housing & Settlements. We look upon this Plan period as one of consolidation, strengthening of the quality and structure of the organisation and services, and of expansion in their strategic sections. While making proposals for expanding and improving them we have kept in mind the need for creating favourable conditions for rapid development in the future.

10. Equitable distribution of income and wealth is one of our important social objectives. Inequalities of income, in so far as they reflect inequalities of natural talents and of the services actual and potential to society, confer a net social benefit and are desirable within reasonable limits. They provide the needed incentives to effort, enterprise and the acquisition and improvement of skills. There are, however, other inequalities which derive from unsocial practices or have ceased to serve any social purpose or act as obstacles to social progress. They have been aggravated by the inequalities generated in the early stage of industrialisation and by the operation of economic controls which usually favour those who already have. We consider that inequalities which originate in large-scale land ownership are socially purposeless, undesirable and harmful. They act as disincentives to development and create unjust conditions of life for large numbers of men and women and bar

their way to progress. They result in a denial of the social objectives we cherish. They involve concentration of wealth and means of production and distribution in the hands of a few to the detriment of the interest of common man. We have recommended a re-adjustment of the rights in land to which we attach the highest priority. It is the most urgently needed social and economic measure of reform. It is a pre-requisite to rural and agricultural development. It will remove what by any criterion is by far the largest source of inequalities and injustices in our social order. This reform is the most important single measure needed for the health and vigour of our society.

11. The inequalities of income and wealth in the commercial and industrial sectors present a different problem. The businessman and industrialist is playing a useful part in the economic development of the country and the functioning of its economy, though in general he extorts an unduly high price for his services. His high incomes nevertheless serve a social purpose, and since the building and strengthening of our productive mechanism must have a high priority we cannot contemplate any forcible measures to deprive him of his gains. They would act as disincentives to development and make our task harder. A strict assessment and collection of taxes including the Estate duty, a more equitable distribution of import licences as well as of licences for setting up new industrial undertakings which would include the encouragement of newcomers, the development of a professional class of managers and exemplary punishment in particularly bad cases should for the present remain the main elements of approach to this problem. The weakness of our administrative organisation prevents the full development of this approach but the people and their representatives cannot disclaim their responsibility.

12. We regard private enterprise as an agency for performing the tasks which it can competently discharge. The need for making rapid advance is so great in the present stage of development that we cannot afford to discard any which can make a useful contribution. Private enterprise is a desirable agency in this sense. The public services cannot perform all the tasks that are feasible and needed. If private enterprise in large scale industry fails to show signs of its willingness and ability to develop a sense of social responsibility, the demand for displacing it to the needed extent would become justified. With an adequately staffed, better organised and more experienced public sector there would be no good reasons, economic or administrative, for resisting the demand.

13. It is necessary to discourage conspicuous consumption and ostentatious living effectively. They justifiably cause resentment among the people and weaken their will to make sacrifices in the cause of national progress. When even the poorest among us are called upon to contribute directly or indirectly to the costs of development, extravagant living by a few assumes the character of a social evil. Conspicuous consumption manifests itself in expensive conveyances and banqueting, large and luxurious houses, and frequent trips to foreign countries. The injuries inflicted on the country are in the first place materrial insofar as extravagant living involves unproductive use of our limited and precious resources. In a higher degree they are moral injuries insofar as they cause frustration and discontent among the people and delay the process of social cohesion and stability. They must be effectively prevented by suitable measures and by example. The leaders in politics, administration and social life have a great responsibility to perform. Our women can play a decisive role.

14. We consider that the development of co-operative organisations can go a long way to alleviate the inequalities of income as well as of opportunity. The large profits of middlemen are one of the most important sources of unduly large incomes and wealth, and the inability of men of small means to compete with men of large means contributes to inequalities and aggravates them. The central purpose of co-operative organisation is to enable men of small means to organise in order to acquire the strength needed for survival in competition against men of large means by combined co-operative action. We appreciate

that the present socio-economic conditions prevent the rapid progress of co-operation and have discussed this subject under Village AID and Rural Credit. It should be the aim of Government to assist the development of co-operation by firm measures of policy and action. The policy of preserving normal channels and instruments of business and trade is in conflict with the declared policy of creating favourable conditions for ensuring equality of opportunity.

15. Inequalities of income and wealth, if they reflect the inequalities of personal talents and of capacity for service to the nation and mankind, are desirable within reasonable limits for the health and vigour of a democratic society. These limits are necessarily wide in a country where talents are yet undeveloped and technical knowledge and administrative experience and ability fall short of actual needs. Incentives for using these limited but essential resources to the farthest limits represent a social necessity. The immediate object of high priority is the accomplishment of urgently needed development which is large in size and complex in nature. At the same time our purpose must be consistently to prevent the concentration of wealth and means of production which do not promote the interest of common man, in particular those built from unsocial gains. Anything approaching flat equality would be destructive of social health and vigour and of individual ambition for growth and development. Our social and economic policy should be to promote a process by which men in the lower scale of living are raised up ; a process of levelling up, instead of levelling down which will discourage progressive movement and produce stagnation.

16. The programme we have proposed in the various sectors such as Education, Health, Housing and Settlements, and Labour and Employment are intended to initiate or to accelerate processes which will directly or indirectly contribute to the fulfilment of the Directives of State Policy as embodied in Sections 28 and 29 of the Constitution, except those which are outside the scope of a development programme or require prior formulation and enunciation of national policy. The Plan is intended to create extended facilities for work and to improve the conditions in which the people live and earn their livelihood. These processes are to be carried to the farthest limits to which our resources in men, money and administrative and technical organisations can be stretched.

17. Our programme can be deemed to fall short in that it makes no provision for direct relief to the indigent. Section 29 of the Constitution provides that the State shall endeavour to " (d) provide basic necessities of life such as good clothing, housing, education and medical relief for all citizens, irrespective of caste, creed or race as are permanently or temporarily unable to earn their livelihood on account of infirmity, sickness or unemployment." We think that neither the resources of the country, nor the information available to us are yet adequate to form a satisfactory basis of any worthwhile programme of assistance to the indigent. We also believe that in the present social conditions a hasty measure of State relief can do serious harm. There is undoubtedly great room for such relief. At present the institution of extended families as against nuclear families and the traditional recognition by the well-to-do and earning members of the community of their responsibilities towards the sick, the indigent and the disabled relatives and others makes an essential contribution to the stability of our social fabric. The teachings of Islam, in particular the institution of Zakat, are powerful stimulants to quiet and unnoticed charity, which benefits without offending the self-respect and dignity of the beneficiaries. A scheme of State relief would adversely affect this source which supports innumerable men and women, while the resources of the Government, either financial or administrative, would be grossly inadequate to fill the vacuum. Social changes are occurring, in particular as a result of urbanisation which in the long run would tend to dry up the existing private source of upport to the needy. The Social Welfare organisations to be set up under our recommendations by the Central and Provincial Governments might well initiate suitable research studies to collect necessary data and keep under review the situation which will change as

urbanisation extends and develops. This will enable the Government to frame and introduce a suitable scheme of relief when the situation requires and the resources permit. The need for such relief will diminish as work opportunities resulting from development increase in the country.

18. The dignity and worth of human personality constitute the basic values of a free society, which it is the aim of our people to build in Pakistan. Men and women must be guaranteed fullest opportunities for the development of their personalities. Subject to their obligations to others, they must be allowed widest measure of freedom for exercising their right to choose their own course of action and the most favourable environment should be promoted to this end.

19. Democratic methods are difficult due to the constant need of reacting and responding to the moods, wishes and requirements of the people. For achieving success a consciousness of unity of social purpose has to be created in all ranks, to win their support and willing co-operation. Initiative and leadership must be encouraged and developed at all levels. Understanding must exist among the political parties on the social and economic objectives of State policy, the difference being confined to the pace and emphasis from time to time in the programmes for achieving them. Political parties, public services and the people must be inspired by common aims and aspirations. These are not easy conditions to fulfil but in a democratic society this is the only means by which we can expect to reach the goals the nation has set for itself. Ultimate rewards in terms of human values and standards are richer and higher in the measure in which they are difficult to win.

20. In the modern age it is not inherently necessary that any men and women should spend their lives in degrading labour to maintain others in comfort and luxury and to afford them opportunities to engage in cultural pursuits. Slavery which once contributed to the promotion of knowledge and culture by the favoured few has ceased. The serfdom of feudal ages has been eliminated, though it lingers in some countries where it is fighting a losing battle. By developing our resources and using them to gain our social objectives we should be able in course of time to assure to all men and women a life of comfort and dignity with reasonable opportunities for social and cultural development which would release their creative energies.

21. The basic principles underlying our social objectives have determined our approach to several important questions which arise in the course of development, such as the right to property, private versus State enterprise, development of local self-governing bodies at all levels, community development in rural and urban areas, and the like. Our approach in all cases has been influenced by the contribution expected towards the development of human personality in a free society.

22. We believe that the principles which underlie the social objectives of our policies are supported by the teachings of Islam, according to which man as the vice-gerent of God is granted a position of high dignity. He is created in the " choicest frame " and has the responsibility of freedom of action to which heaven and earth were found unequal. He must have opportunities for free development in this life to enable him later to render an account of his performance as an individual answerable for his actions.

23. The objectives of our social policy while guaranteeing fullest freedom and rights to minorities will enable Muslims to order their lives according to the teachings of Islam, which is one of the duties enjoined upon the State under the Constitution.

## Chapter 2

# OUTLINE OF THE PLAN

## I. SIZE AND OBJECTIVES OF THE PLAN

1. The development programme proposed for the country is estimated to cost 11,600 million (1,160 crore) rupees during the five-year period from 1955-56 to 1959-60, 8,000 million (800 crore) rupees in the public sector and 3,600 million (360 crore) rupees in the private sector. The public sector programme includes (*a*) the estimated cost of specific schemes which have been reviewed in some detail, and (*b*) reserves to cover the cost of possible schemes for East Pakistan, and for the less-developed areas of West Pakistan, which are worthy in objective but have not yet been prepared or reviewed in detail. These add up to a total amount of 9,230 million (923 crore) rupees. From this total is deducted an estimated shortfall of 1,230 million (123 crore) rupees to arrive at the expenditure target of 8,000 million (800 crore) rupees for the public sector.

2. The Plan is designed to achieve the following objectives :

(*a*) To raise the national income and the standard of living of the people ;

(*b*) To improve the balance of payments of the country by increasing exports and by production of substitutes for imports ;

(*c*) To increase the opportunities for useful employment in the country ;

(*d*) To make steady progress in providing social services : housing, education, health, and social welfare ; and

(*e*) To increase rapidly the rate of development, especially in East Pakistan and other relatively less-developed areas.

3. Considering the resources that can be made available for development and the targets of development that are feasible within the limits of these resources, we believe an increase of about 20 per cent in national income can be achieved over the Plan period. As the population is expected to grow by about 7·5 per cent. *per capita* income can rise by around 12 per cent. If the pace of economic development is to increase during the Plan period and in succeeding years, a substantial part of the increased national income must be saved and invested, but this would still allow for some improvement in living standards.

4. At present the foreign exchange earnings are barely sufficient to meet the country's requirements for essential consumer goods, raw materials, defence supplies, and other non-development imports. It is one of the major objectives of the Plan to improve the balance of payments by increasing exports and by raising the domestic production of goods that would otherwise have to be imported. We estimate that as a result of the development programmes in the various fields, the foreign exchange earnings in the last year of the Plan will exceed the requirements of essential needs for non-development purposes by about 500 million (50 crore) rupees, which will be available for development. In the succeeding years the surplus should be larger, and since foreign exchange requirements are only a fraction of total financial requirements, it would be possible at the beginning of the next Plan period to provide foreign exchange from the country's own earnings for a development programme of the order of about 1,500 million (150 crore) rupees per year. We expect that by the end of the Plan period the country's dependence on external aid for development purposes will be substantially reduced.

5. Reliable information is not available about the increases that have been taking place in recent years in employment in the various industries and occupations, and we have not been able to make precise estimates about the changes that will take place in the Plan period. There is hardly any information about unemployment in rural areas. We have

roughly estimated that the labour force will increase by about 2 million (20 lakh) during the Plan period. While we have not been able to make precise estimates of the growth in work opportunities under the Plan, considering the fairly definite prospects for increased employment in large-scale industry, agriculture, and construction, and the likely increases in small-scale industry, trade and commerce, transport, and other fields, it is very roughly estimated that employment during the Plan period will rise by about as much as the rise in the labour force.

6. Increasing the social services available in the country is a major objective of any development Plan, although the resources that can be devoted to this purpose are limited by the necessity to provide a solid basis of agricultural and industrial progress upon which further social gains will depend. During the Plan period, expenditures on housing, education, health, and social welfare will rise steadily. As a result of the public sector development programme, about 250,000 new housing units are expected to be built ; large numbers of existing educational institutions will be improved ; increased opportunities will be provided for technical education and training ; over one million additional children will be in primary and secondary schools ; a country-wide anti-malaria campaign will be carried out, and in all the social fields a sound basis will be laid for more rapid progress in the future.

7. Although the rate of development activity has risen in recent years, it must rise very much further if the country is to enter a period of sustained progress. The Plan offers a great challenge to the country, especially to the officials who will be called upon to execute the public sector programme. We have proposed high targets ; even allowing for a shortfall, which seems inevitable in the early years of a national development programme, the Plan calls for raising the rate of development activity by 1960 to between two and three times what it was at the beginning. Only the most single-minded dedication will make it possible to achieve this objective.

8. The challenge will be especially great in East Pakistan and in the less-developed areas of West Pakistan, such as Kalat and Quetta Divisions and the Tribal Areas. East Pakistan has made appreciable progress since 1947 in building its Capital and administrative services, reorganising transport and constructing harbours, and establishing baling and manufacturing capacity for jute, all of which was needed for acquiring economic independence. The rate of development, however, has not been as high as in West Pakistan as a whole. In West Pakistan there are certain areas where most people live in extreme poverty ; some improvement has been made since independence, particularly in transport and in education, but development has not been as rapid as was necessary. One of the chief objectives of the Plan is to achieve a more balanced development of the country as a whole. Because of the deficiencies of administrative and technical organisation, special efforts will be necessary throughout the country to attain the scale of investment envisaged in the Plan. But these deficiencies are greater in East Pakistan, and even more determined steps have to be taken to accelerate the pace of development in this Province.

9. The first development Plan must be viewed as a foundation from which the economy can make more rapid and balanced progress in the future. The benefits will accrue in part during the Plan period. The increase in national income will be channelled partly into investment and partly into consumption. The country's foreign exchange position will be improved by an increasing supply of goods for export and by an increasing home production of goods previously imported. The technical and organisational resources of the country will be increased, and it will be possible to undertake much larger development programmes in future.

10. Compared with the immense needs of the country, the progress that is possible during this five-year period is small. Nevertheless, there will be an increase in the standard of consumption, which will permit some improvement in the condition of nearly everyone

in the country. The production of food, cloth, and several other consumer necessities is expected to rise faster than the population. What is even more important, the Plan will lay a stronger and firmer base for more rapid increases in the welfare of the people in later years.

## II. DEVELOPMENT TARGETS AND PRIORITIES

11. In the public sector, the estimated costs of the programme are distributed as shown in Table I.

### TABLE I

(*Distribution of public expenditure on development*, 1955—60)

(Figures can be read in millions by removing decimals)

| | Crore rupees | Percentage of total (excluding reserve) |
|---|---|---|
| Village AID, and rural development outside Village AID areas | 24·3 | 3·0 |
| Agriculture (including colonisation, animal husbandry, forestry, and fisheries) | 88·6 | 10·9 |
| Water and power development | 260·1 | 32·0 |
| Industry (including fuels and minerals) | 107·6 | 13·2 |
| Transport and communications | 164·2 | 20·2 |
| Housing and settlements | 77·1 | 9·5 |
| Education and training | 58·1 | 7·1 |
| Health | 28·7 | 3·5 |
| Social welfare | 3·3 | 0·4 |
| Labour and employment and miscellaneous | 1·6 | 0·2 |
| Reserves | 110·0 | ... |
| Total | 923·6 | 100·0 |
| *Less* : likely shortfall | 123·6 | |
| Estimated net expenditure | 800·0 | |

12. In the private sector, monetary expenditure for development estimated at 3,600 million (360 crore) rupees will be concentrated in the fields of industry, transport, and housing. The programme in the private sector is, by and large, an estimate of what private investment will be in the various fields of development under the influence of appropriate government policies.

13. We expect that over one-third of this will be invested in large-scale industry, and have indicated the fields in which investment would be desirable and feasible. Given the encouragement provided by the public housing and settlements programme, we expect that private investment in construction will also increase, and may require about one-quarter or somewhat less of the resources available for private investment. The remainder

of those resources would be for transport equipment (trucks, buses etc.), for minerals (mostly exploration for gas and oil), and other fields (agriculture, service trades, commerce etc.). While the Government cannot determine precisely the magnitude or the kind of private investment that will actually be made, it can, by suitable policies and through its import licensing powers, greatly influence the magnitude of private investment, and ensure that it does not go into fields considered undesirable or of lower priority.

14. In addition to these expenditures in the public and private sectors, there is expected to be an investment of labour and local materials, which would not primarily involve any expenditure of money, for private and communal purposes, such as the construction of houses, small irrigation and reclamation works, and other durable assets for private use, and the building of schools, dispensaries, roads, drains, wells and bunds, by rural communities for collective use. Such non-monetary investment will be greatly encouraged under the Plan, particularly the housing, Village AID, and urban community development programmes ; it may be of the order of 1,500 to 2,000 million (150 to 200 crore) rupees during the Plan period. No estimate of such investment has been included in the Plan, but it will have a substantial effect in raising living standards, particularly in rural areas.

15. In order to achieve the objectives of the Plan, the country's resources must be concentrated on purposes of the highest importance that are expected to give the greatest returns. Resources must not be employed on purposes of secondary importance. The Plan can succeed only if a strict scheme of priorities is followed. The targets which have been proposed for the different fields of development are as follows :

### Village AID

16. The Village AID programme is of crucial importance as the means for bringing better living standards and a new spirit of hope and confidence to the villages, where, according to the 1951 Census, about 90 per cent of the people of the country live. The Plan provides for expanding Village AID as rapidly as the necessary staff can be trained ; about 5,000 village workers will be available by 1960 and posted to about 26,000 villages, some 25 per cent of the villages in the country. The bulk of the remainder can be covered by 1965.

### Agriculture

17. The development of agriculture (including animal husbandry, fisheries, and forestry) has lagged in recent years. Yields per acre of most food crops have not risen, and even taking into account the new acreage brought under cultivation, the increase in food production does not seem to have kept up with the increasing population. This situation is serious and must be rectified. The basic target by 1960 must be to provide a secure food supply within the country for the growing population, and to make a substantial beginning, through research and extension programmes and the provision of fertilisers, equipment, pesticides and so on, towards more diversified and more valuable agricultural output. Targets recommended in the Plan include a 13 per cent increase in food grains and larger increases in cotton, oilseeds, sugarcane, and fruits and vegetables. These will not be easy targets to reach, especially because sufficient attention has not been given so far to agricultural development. The drive and energy which characterise the field of industry must be matched by a determined leadership in agriculture, inspired by a resolve to achieve, and if possible exceed, the targets of production recommended in the Plan. A balance must be maintained between industry and agriculture by stimulating agricultural progress rather than by curtailing industrial progress.

### Water and power development

18. A large programme of irrigation development was under way in West Pakistan in 1955, and will be continued during the Plan period ; by 1960 it is expected that 2·5 million (25 lakh) acres of new land will be brought under irrigation, and 3·3 million (33 lakh) more acres will have an improved water supply or been reclaimed from salinity and water-logging. In East Pakistan the water development programme under way at the beginning of the Plan period was much smaller than is required : the Plan provides for increasing the programme as rapidly as personnel can be trained and organisations established. By 1960 about 400,000 additional acres of land will be brought under winter irrigation and about 1·5 million (15 lakh) acres improved by drainage and flood regulation. The basis will have been laid for a larger programme in the future, particularly for long-range measures to diminish flood damage. In both Wings the Plan provides for increasing the supply of electric power sufficiently to overtake essential demands by 1960. Installed capacity is expected to rise from 280,000 kilowatts at the beginning of the Plan period to 860,000 at the end, and the annual use from 7 units to 23 units *per capita*.

### Industry

19. Industrial development has been very rapid in recent years. The Plan proposes further advances, but in a better balanced manner, through the fuller use of existing industrial capacity and new projects of high priority—those that are expected to increase the national income substantially, to save or earn foreign exchange, or to create employment opportunities to the largest extent in relation to investment. Substantial increases in industrial research and a large expansion of the programme to assist small and cottage industries through research, training, finance, marketing, and advisory services, are included in the Plan. The production of large-scale industries is expected to increase by about seventy-five per cent during the Plan period. Important industrial targets include : raising the productive capacity of cement from 670,000 tons per year to 1,280,000 tons ; of fertiliser from nil to 162,000 tons ; of sugar from 115,000 tons to 235,000 tons ; and the number of jute looms installed from 3,300 to 12,000.

### Transport and communications

20. The Plan provides for sizeable expenditures on the rehabilitation and replacement of railway track and rolling stock, on an expansion of the road network in both Wings particularly to open up areas now cut off from road communications, on the development of inland water transport, shipping, and civil aviation, and on the expansion of telephone, telegraph, and broadcasting facilities.

### Housing and settlements

21. The country's needs for more and better houses, and for community services such as water and sewerage systems, are enormous. During the present Plan period, priority in both rural and urban areas is given to providing pure water supplies and sewerage systems, because of their importance for health. The Plan provides also for about 250,000 new housing units in urban areas, 100,000 of which will be set aside for refugees. This work will be done in new ways designed to serve the needs of the people better at less cost, by the maximum use of local materials and " self-help " methods of construction.

### Education and training

22. During the Plan period, priority will be given to improving the quality of education at all levels, primary, secondary, college, and university ; rapidly expanding education and training in the technical, vocational, and professional fields to provide essential qualified

personnel for all sectors of the development programme ; and opening new schools, so far as resources permit, especially in areas which are relatively backward. Large numbers of pupils now drop out before completing their primary courses and revert to illiteracy. This results in great waste of effort. The planned improvements will enable schools to hold much larger numbers of pupils to the end of their courses than is the case at present. Besides, over one million (10 lakh) additional children will be attending primary and secondary schools and 1,600 engineers and engineering technicians will be turned out each year by the end of the Plan period.

### Health

23. In the field of health, highest priority is given to preventive measures, including a country-wide anti-malaria campaign and a substantial expansion of the anti-tuberculosis programme. In addition, medical education will expand under the Plan, a beginning will be made on medical research, school health services, and health education, and some expansion of hospitals, dispensaries, and other curative services will take place. By the end of the Plan period, the anti-malaria measures are expected to have reached all those areas of the country where the disease is prevalent. The number of beds in hospitals and dispensaries will have risen from 23,000 to 32,000.

### Social welfare

24. Social welfare, conceived as an endeavour to prevent serious social problems from accompanying the economic and social changes brought about by development, is a relatively new field in the country but is of very great importance. The Plan provides for the most rapid possible increase in the training of social workers. About 500 in all will be trained during the Plan period, and will be employed in urban community development projects, medical social work, and other activities designed to assist people to solve their own problems through co-operation and self-help.

### Labour and employment and others

25. The Plan gives priority in the field of labour and employment to (*a*) the improvement of factory inspection to prevent exploitation and ill-treatment of workers ; (*b*) support for trade unions and collective bargaining ; and (*c*) the commencement of minimum wage regulation and social security provisions. The Plan also provides for the development of statistics and insurance.

26. In summary, the Plan gives first priority to agriculture. If we exclude the reserves, about one-third of planned public expenditures are devoted primarily to this field through the agriculture, Village AID, irrigation, reclamation and drainage programmes. Industry and power comprise over one-quarter of total estimated public expenditures on development. In addition, there is a large industrial investment programme in the private sector. Transport and communications absorb about one-fifth of total public expenditures, and social services the remaining one-fifth of the public programme. These proportions reflect the order of priority assigned to the various fields. We believe that the provision for social services is as high as the country can afford with its present economic capacity. Excluding the reserve, the proportion of the programme devoted to social services in East Pakistan is much higher—over one-third of the total. We therefore believe that the reserve should be devoted almost entirely to other fields of development, so that the programme in that Province will not be unbalanced and that its financial position will be restored and strengthened.

## III. THE OBJECTIVE OF BALANCED DEVELOPMENT

27. The Plan is designed to increase the welfare of all the people of the country, whether they live in village or city, tribal area or administered area, East Pakistan or West Pakistan. The Plan should bring benefits everywhere, and maximum benefits where the needs are greatest. This makes it necessary to give special attention to East Pakistan and the less-developed areas of West Pakistan.

28. The problem of a proper rate of development is acute as between East Pakistan and West Pakistan. Because there is little or no movement of people between the two Wings, it is necessary that economic opportunities should move to the people, rather than the people to economic opportunities. East Pakistan suffered from neglect and exploitation for two centuries before partition. In recent years the energies of the Government have been concentrated on the high-priority objective of gaining a measure of economic independence, by the improvement of basic facilities such as transport and communications which are a pre-requisite to the success of a development programme.

29. It has been our purpose to provide in the Plan for the greatest possible increase in the rate of development in East Pakistan. We have spent much time, in consultation with the Provincial Government, in considering schemes and proposals in each field in order to find out how the development programme can be expanded to the maximum extent. As a result, the schemes recommended in the Plan for execution by the Government of East Pakistan are considerably larger than the programme originally proposed by that Government in March, 1955. Subject to the necessary administrative arrangements, the rate of increase in spending for development will rise very rapidly under the Plan in East Pakistan. Some of the increases in development spending on specific schemes in different fields are shown in Table 2.

TABLE 2

*Planned increase of public expenditure in selected fields of development in East Pakistan, 1955—60*

(Figures can be read in millions by removing decimals)

| | Planned development spending, 1955-56 | Planned development spending, 1959-60 | Percentage increase |
|---|---|---|---|
| | | (Crore rupees) | |
| By the Provincial Government | | | |
| Agriculture ... ... ... ... ... ... | 1·6 | 7·3 | 35·0 |
| Water and power development ... ... ... ... | 7·1 | 15·4 | 12·0 |
| Health ... ... ... ... ... ... | 1·1 | 3·9 | 25·0 |
| Education ... ... ... ... ... ... | 2·3 | 6·2 | 17·0 |
| By the Pakistan Industrial Development Corporation ... ... | 4·5 | 12·1 | 17·0 |

30. The figures shown in Table 2 relate only to specific schemes already prepared in some detail. The proposed acceleration is extremely rapid, in relation to the technical and administrative limitations—even more so than Table 2 suggests, because expenditure in

1955-56 may well prove to have been below the planned figure. Nevertheless, the Government of East Pakistan would like to attempt more, and we have endorsed this intention. The first step in any enlarged programme must be to prepare detailed plans for development schemes, based upon technical surveys and investigations, for which East Pakistan needs to improve and strengthen its organisation even more than West Pakistan. We have proposed a reserve of 1,000 million (100 crore) rupees to cover the cost of additional schemes to be designed in detail and approved for commencement during the Plan period. It is particularly urgent to conduct surveys and prepare plans for agriculture research and extension, storage and marketing, for flood regulation and drainage, for inland water transport, and for technical education.

31. We are convinced that the programme we are recommending for the development of East Pakistan is as large as is feasible, and perhaps larger. Very serious difficulties will have to be faced and overcome, and even then the rate of development is not likely to increase by 1960 as much as we should like. The shortages of trained personnel, both technical and administrative, and of detailed schemes are very great. It will necessarily be several years before East Pakistan will be able to plan and execute a development programme commensurate with the needs of the Province. The limiting factor in almost every field of development in East Pakistan will be not finance but trained personnel and competent organisations.

32. The areas of West Pakistan which are relatively less developed are largely the mountainous and desert regions of Kalat and Quetta Divisions, the Tribal Areas of the northwest, and districts such as Muzaffargarh and Dera Ghazi Khan. These areas share the common characteristics of low rainfall, difficult terrain, and dependence on a very primitive economic base in agriculture, livestock, and cottage industries. Since independence, the administrative structure in the areas has been improved to some extent, particularly by the posting of technicians ; some road development has occurred; certain water development and industrial schemes (notably the woollen mills at Harnai and Bannu) have been established ; and considerable efforts have been made to develop educational institutions. In addition, certain general economic surveys (particularly in the former Baluchistan States Union), and aerial and ground reconnaissance geological surveys have also been conducted.

33. One of the objectives of development policy must be to bring the less-developed areas up to the level of the rest of the country. This will be difficult owing to the lack of prepared and specific schemes, and the shortage of technical and administrative personnel. During the preparation of the Plan, and before the unification of West Pakistan, we considered carefully the proposals presented by the various States and Provinces responsible for these areas ; for the most part the proposals were inadequate because they were not supported by sufficient technical studies. In these circumstances we considered it necessary to include relatively large provisions for surveys and investigations, for training staff and establishing basic technical services (such as agricultural extension), and for opening up communications. For example:

(*a*) We have included nearly 6 million (60 lakh) rupees for investigation of water resources and preparing schemes in Quetta and Kalat Divisions ;

(*b*) We have proposed that Peshawar University be aided in carrying out a social and economic survey of the Tribal Areas and developing a continuing research programme;

(*c*) We have made special provision for educating boys from Tribal Areas, from the former Baluchistan States Union, and other areas virtually lacking in schools ;

(*d*) About one-third of the funds included for civil roads in West Pakistan are intended for the less-developed areas ; and

(*e*) We have proposed a special provision for small development schemes in the Tribal Areas, which, if found useful, can be increased during the Plan period.

34. With the unification of West Pakistan, the problems of these less-developed areas have become the responsibility of the West Pakistan Government, who are alive to their urgency. This offers a considerable opportunity to improve the number of technicians and administrators in the less-developed areas by assigning them from the areas which are better staffed ; a special posting allowance will undoubtedly be required in some cases. The West Pakistan Government wishes to move forward vigorously in the backward areas, and we believe a systematic approach can make good progress during the Plan period. We hope that the West Pakistan Government will soon be in a position to prepare additional productive schemes and proposals along the lines we have recommended in the various development sectors. A rapid rise in the rate of development in these areas is desirable and while obstacles of lack of information and shortage of staff will be difficult to overcome, the lack of other resources should not be allowed to stand in the way. We have therefore, included a special reserve of 100 million (10 crore) rupees for schemes in these areas.

35. Refugees are another group in the population requiring special attention in the Development programme. At the same time we believe it is essential that refugees are not set apart from the rest of the population, but integrated with them as rapidly as possible. To a large extent they are dispersed through the population, and improvement in their condition will come principally from the general improvement in the economy, and especially the new employment opportunities resulting from the Plan. In the fields of housing and social welfare, however, refugees have special problems to which we have given special attention. In the housing field we have provided for 100,000 building plots to be set aside for refugees out of a total programme of 250,000 new plots to be developed by the Government. We propose that these plots be reserved for refugees, but be part of new settlements created for the whole population, with refugees interspersed among other settlers. Similarly we have proposed that areas with a heavy concentration of refugees be given special priority under the urban community development programme. Twenty to twenty-five of the 70 projects under this programme are to be located in such areas. We expect that the development programme would go far towards eliminating the housing of refugees as a special problem by the end of this Plan period. In succeeding years it should be possible to plan for refugees as part of the general population in all fields.

## IV. RESOURCES FOR DEVELOPMENT

36. The problem of finding resources for development could be approached from the standpoint of finding means for achieving pre-determined targets of national income, employment and production. In this approach, all the resources of the community are regarded as available for being pressed into development work to achieve pre-determined physical goals, the tasks imposed on the people are often larger than they can bear without suffering serious hardships, standards of consumption are reduced as necessary, and men and women are ordered into jobs and localities at the will of the government. This necessarily means the imposition of extensive controls in order to direct all resources, physical and human, into desired channels for achieving the prescribed targets. This approach is foreign to this country's faith in individual freedom and democratic government, and we have rejected it.

37. We have approached the problem of resources rather from the standpoint of estimating the maximum amount of resources which the community will be willing to devote to development either through public or private saving. This approach does not mean absence of sacrifice : we propose that the people should be asked to limit themselves to a small increase in consumption during this Plan period in the interest of development and more rapid gains in income in later periods. The development targets we have proposed can be met only if the Government and the people put forth their maximum effort. The targets are pitched high, but not so high as to be beyond reach. Everyone will have to accept a basic policy of hard work and plain living. The people must understand the benefits of development and the part they should play in it, and by their voluntary participation and individual initiative, work to achieve greater and more satisfying results than could be achieved under a system of rigid and centralised dictation.

38. The major source of finance for the Plan is the country's own saving. This takes two forms : public saving and private saving. Public saving is the amount by which the public revenues exceed public expenditures for non-development purposes such as defence and civil administration. We are recommending some additions to government revenues from taxes and other sources, though these are not large. With these additions to revenue, and assuming strong efforts to hold down government expenditures for non-development purposes, we estimate that public saving by the Central and Provincial Governments combined can be made available to the tune of 1,500 million (150 crore) rupees for development.

39. Private saving is the amount by which private incomes (after taxes) exceed expenditures for consumption. We have estimated private saving at about 950 million (95 crore) rupees in 1954-55. Assuming that the national income grows by about 20 per cent over the Plan period, and that about 10 per cent of each year's addition to national income is added to private saving, the potential private saving for the Plan period may amount to 5,900 million (590 crore) rupees. I must be emphasised that these potential savings will not be realised unless vigorous measures are taken to encourage thrift, including the continued prohibition of luxury imports, limitations on sumptuous ceremonials, and encouragement of life insurance and postal savings. Of the total private saving, somewhat less than half would be used to support public development expenditure and somewhat more than half to support private investment.

40. In addition to the country's own savings, development can be financed by resources made available from abroad, in the form of private investment and public loans and grants. Gross private foreign investment may amount to 500 million (50 crore) rupees during the Plan period, largely in exploration and drilling for oil, of which about 400 million (40 crore) may be available for the development programme. In comparison with the total estimated cost of the development programme, public and private, of 11,600 million (1,160 crore) rupees, the sources of financing listed above leave a gap of about 3,800 million (380 crore) rupees. It is not, of course, possible to predict that this amount will be made available through foreign grants and loans, because their amount will depend on the decisions of the foreign governments and lending institutions concerned. Considering the possible availability of aid and loan funds, and the existence under the Plan of suitable schemes and purposes to which such funds can usefully be applied, we think it possible that the country will be able to obtain the funds needed to carry out the Plan.

41. The sources and uses of resources may be summarised as in Table 3.

TABLE 3

*Sources and uses of development finance*, 1955—60

(*Crore rupees*)

(Figures can be read in millions by removing decimals).

| Sources | Amounts | Uses | Amounts |
|---|---|---|---|
| Public Saving ... ... ... | 150·0 | Private Investment ... ... | 360·0 |
| Private Saving ... ... ... | 590·0 | Public Development Expenditure ... | 800·0 |
| Total Saving ... ... ... | 740·0 | | |
| External Finance ... ... ... | 420·0 | | |
| Total sources ... | 1160·0 | Total uses ... | 1160·0 |

42. These estimates cannot be precise ; the actual size of the resources available for development each year will have to be calculated annually, and the annual development programme adjusted accordingly.

43. We estimate that public and private gross saving together will amount to about 7,400 million (740 crore) rupees during the Plan period, or about 7 per cent of the country's expected gross national product during the period. We have projected an increase in gross savings from an estimated 5 per cent in the pre-Plan period to 8 per cent in the last year of the Plan. These are not high figures when set against the roughly comparable gross saving rates of 15 or 20 per cent common in some of the advanced countries, but the estimates for the Plan period are substantially higher than what has been achieved in the past, and strong determination will be required if the country is to realise them.

44. We have prepared the Plan in such a way as to minimise import needs by selecting, so far as possible, schemes that use mainly domestic resources, and by providing, wherever possible, for the use of local materials. Even so, the requirements for foreign exchange are heavy, being estimated at approximately 3,400 million (340 crore) rupees during the Plan period for the public sector development programme, and 1,900 million (190 crore) rupees for the private sector.

45. We have estimated the country's total foreign exchange earnings during the Plan period at about 10,140 million (1,014 crore) rupees, and minimum foreign exchange requirements for consumer goods, raw materials, defence, and other non-development imports at about 9,140 million (914 crore) rupees, leaving about 1,000 million (100 crore) rupees available for development. The balance of the foreign exchange requirements would be met through the foreign investment, aid and loans mentioned above.

46. At the beginning of the Plan period, there was no surplus of foreign exchange earnings over requirements for non-development imports which could be used to pay for development imports. As a result of investments previously made and to be made during the Plan period, agricultural and industrial products available for export will increase, and export earnings are expected to rise by about 400 million (40 crore) rupees. At the same time, requirements for imports of essential consumer goods, raw materials, and fuels will drop somewhat as local production expands; requirements for non-development imports are expected to fall by about 100 million (10 crore) rupees. During the Plan period, therefore, the country's foreign exchange position will improve substantially, and by 1960 we hope that about 500 million (50 crore) rupees per year could be made available for development from the country's own earnings. It must be emphasised that this improvement in the country's foreign exchange position will not be achieved unless there is continued austerity in the import of non-development goods, and unless the scale of investment and the priorities proposed in the Plan are realised.

## V. EXECUTING THE PLAN

47. The total estimated expenditure in the public sector development programme is divided as follows :

| | (Crore rupees) |
|---|---|
| Expenditures by the Centre ... ... ... ... ... ... | 348·0 |
| Expenditures by the Government of East Pakistan ... ... ... | 300·0 |
| Expenditures by the Government of West Pakistan ... ... ... | 275·0 |
| Total ... | 923·0 |

These figures are misleading, however, because about 750 million (75 crore) rupees of estimated expenditures by the Centre are for water and power projects in West Pakistan (principally Mangla and Warsak Dams). If this adjustment is made, the estimated expenditure by the different Governments in different fields is as shown in Table 4.

### TABLE 4

*Public expenditure on development*, 1955—60 *by fields and executing authorities.*

(*Crore rupees*)

(Figures can be read in millions by removing decimals)

| | East | West | Centre (including Karachi) | Total |
|---|---|---|---|---|
| (1) Village AID and rural local development ... | 10·9 | 12·4 | 1·0 | 24·3 |
| (2) Agriculture (including colonisation, animal husbandry, fisheries, forestry, credit, consolidation of holdings). | 25·6 | 48·8 | 14·2 | 88·6 |
| (3) Water and power development ... ... | 66·7 | 187·1 | 6·3 | 260·1 |

TABLE 4—*contd.*

| | East | West | Centre (including Karachi) | Total |
|---|---|---|---|---|
| (4) Industry ... ... ... ... | 2·9 | 2·4 | 93·1 | 98·4 |
| PIDC (Government funds only) ... ... | ... | ... | (87·4) | (87·4) |
| Credit ... ... ... ... | ... | ... | (5·0) | (5·0) |
| Other (small-scale, etc.) ... ... ... | (2·9) | (2·4) | (0·7) | (6·0) |
| (5) Minerals and fuels ... ... ... ... | 0·1 | 0·4 | 8·7 | 9·2 |
| (6) Transport and communications ... ... | 24·8 | 20·0 | 119·4 | 164·2 |
| Railways ... ... ... ... ... | ... | ... | (68·3) | (68·3) |
| Ports (excluding shipyards) ... ... | ... | ... | (11·6) | (11·6) |
| Civil Aviation ... ... ... ... | ... | ... | (7·8) | (7·8) |
| Shipping ... ... ... ... ... | ... | ... | (6·3) | (6·3) |
| Posts, Telegraphs and Telephones ... ... | ... | ... | (22·9) | (22·9) |
| Broadcasting ... ... ... ... | ... | ... | (2·5) | (2·5) |
| Road transport ... ... ... ... | ... | (2·5) | ... | (2·5) |
| Roads ... ... ... ... ... | (16·5) | (17·5) | ... | (34·0) |
| Inland water transport ... ... ... | (8·3) | ... | ... | (8·3) |
| (7) Housing and Settlements ... ... ... | 29·5 | 28·6 | 19·0 | 77·1 |
| (8) Education ... ... ... ... ... | 24·2 | 24·9 | 9·0 | 58·1 |
| (9) Health ... ... ... ... ... | 14·1 | 13.9 | 0·7 | 28·7 |
| (10) Social Welfare ... ... ... ... | 1·3 | 1·5 | 0·5 | 3·3 |
| (11) Labour and employment and other ... ... | 0·1 | 0·3 | 1·2 | 1·6 |
| (12) Reserves ... ... ... ... ... | 100·0 | 10·0 | ... | 110·0 |
| Total ... | 300·2 | 350·3 | 273·1 | 923·6 |

*Note.*—These figures are gross, inclusive of expenditure on replacement and rehabilitation. There are substantial amounts of replacement and rehabilitation under such heads as railways, shipping, irrigation and housing, etc. Under irrigation, in particular, large expenditures are needed to reclaim lands that have gone out of cultivation or to prevent lands from going out of cultivation. However, the line of demarcation between development and replacement is not always clear. Moreover, all replacements include large or small elements of improvements. There is no doubt, however, that expenditures on replacement are very large in West Pakistan.

If all expenditures on replacement could be estimated, we would arrive at net figures of programmes which might be larger for West or East Pakistan. It is for the Provincial Governments of East and West Pakistan to utilise resources allocated under the Plan. The limiting factor being the administrative and technical organisation and not finance, in the final result, the sizes of the regional programmes would depend on actual accomplishment.

48. These figures will require some adjustment later on to reflect the distribution of functions under the new Constitution. They are in any case imperfect indications of the impact of development programme in different parts of the country. Certain types of expenditure are naturally higher in one Wing or the other. The cost of caring for refugees, of colonising new areas, and of preventing existing lands from going out of cultivation, are all considerably higher in the West, but this does not mean that development is more rapid. On the other hand, the estimated development expenditures by the East Pakistan Government do not, in our view, indicate the maximum that would be desirable, but rather the limit that will be set during the Plan period by the technical and administrative capacities available; if in fact East Pakistan can overcome these limitations, we believe that the other resources needed to increase the rate of development can be found.

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50. If all expenditures on replacement could be estimated, we should arrive at net figures of programmes which might be larger for West or East Pakistan. It is for the Provincial Governments of East and West Pakistan to utilise resources allocated under the Plan. The limiting factor being the administrative and technical organisation and not finance, in the final result, the sizes of the regional programmes would depend on actual accomplishment.

51. It seems to be the normal experience of countries in the early stages of development to have shortfalls in the execution of development programmes. In view of the shortage of administrative and technical staff for development work, we think it certain that there will be some shortfall in expenditures under this Plan. If we provided for schemes only to the extent of the estimated resources, a shortfall in expenditures would mean that some resources would remain unused. Accordingly we think it necessary to set expenditure targets higher than foreseeable resources, in the expectation that a shortfall in expenditures will bring us out near the point of full use of resources. If there were a shortfall of 1,230 million (123 crore) rupees in the total estimated cost of the public sector programme the net expenditures would be about 8,000 million ( 800 crore ) rupees. Together with the estimated private sector investment costs of 3,600 million (360 crore) rupees, the makes a total expenditure very close to our estimate of resources. We believe that on this basis it should be possible to prepare annual development programmes which match development requirements with available resources.

52. It will of course be necessary to retain considerable flexibility in determining the allocation of resources. No purpose would be served by assigning more resources to a particular scheme in any one year than could be spent; this would simply sterilise resources which might be put to good use on another scheme. Nor would any purpose be served by setting aside resources for a particular sector or a particular geographical area if those resources will not in fact be used; such resources would simply be wasted to the detriment of national development. Accordingly it will be necessary to review actual performance carefully each year, and indeed constantly within each year, in an attempt to ensure that actual resources as they become available will be fully and efficiently used.

53. We have been deeply impressed in the course of preparing this Plan by the very great difficulties which will be encountered in executing it. In virtually every field the country is extremely short of trained technicians and administrators to carry out development work,

and what is at least as serious in many fields, the country is also short of organisations with sufficient tradition, staff, and experience to implement large development schemes. In a great many cases the shortage of trained manpower or of experienced organisations, rather than lack of finance, is the factor limiting the speed of development. These conditions are only natural in a country in the first years of independence, breaking the crust of centuries of near-stagnation. Nevertheless, no one should underestimate the tremendous problem of achieving the objectives set in this Plan.

54. We have made such provision as was possible in the Plan itself to help in its execution. In each field of development we have attempted to estimate the number of trained persons required to execute the schemes proposed ; we have provided for increases in training to the largest extent feasible, and we have planned the rate of increase in programmes such as Village AID in accordance with the likely supply of trained workers. We have recommended many changes in organisation and administration in order to improve the ability of the Government to carry out development programmes. These include the establishment of survey and planning staffs in every sizeable department and ministry ; the establishment of new organisational units in several fields, notably natural resources, housing and settlements, and social welfare ; the improvement of procedures of budgeting and financial control, and of methods of recruiting, training and posting of personnel ; and the improvement and strengthening of local government bodies. Above all a change is necessary in the outlook of government officials and in the major concentration of their work, from emphasising law enforcement and revenue collection to improving the welfare of the people. This change has already started, but it has far to go before it is reflected in every aspect of the administration. Divisional Commissioners, officers in charge of districts, and other administrative officials must devote their major energies to welfare and development, and arrangements must be made to relieve them of some of the burden of police, revenue, and judicial work. The purpose must be to make the administration the strong core of the national development effort.

55. The execution of the development programme will strain the ability of the government officials to the utmost and will necessitate great improvements in administrative organisations, methods, and outlook. Development, however, is far more than a matter of government administration. The Plan has been designed to draw forth and utilise the energies of all the people in the country, and it will require for its success a strong nationwide commitment to the actions and policies that will bring progress. The country is starting on a course of growth and expansion which will continue not just for one five-year period but for many years to come ; it is undertaking nothing less than a peaceful revolution, and the fundamental requisite for success is a spirit of devotion and dedication permeating every part of our national life.

## VI. PROGRAMMES OF DEVELOPMENT IN MAJOR FIELDS

56. A summary of the policies and programmes proposed for each major field of development is given below.

### VILLAGE AID

57. The enrichment of life in the villages and rural areas of the country is in our view the most important objective of the Plan, because about 90 per cent. of the country's people live in rural areas, often in poor and primitive conditions. The major instrument for accomplishing this is the Village Agricultural and Industrial Development Programme, which aims at increasing the production from agriculture and village industries, and thereby increasing the incomes of the rural people. The programme also seeks to provide more schools and health centres, better water supplies, and other social and recreational facilities for the villages.

58. All this will be done mainly through the initiative and energy of village people themselves, co-operating and pooling their own resources. The Government will provide the assistance of village workers under the leadership of development officers, who will help the villagers to make plans for local development and to organise themselves for carrying them out. The Government will also provide the services of specialists from the different government departments—agriculture, animal husbandry, health and so on—and will provide some funds and materials to enable the villagers to carry out work which they could not otherwise do.

59. Some rural areas, to be called development areas, will be selected for intensive development. Each development area will consist of 150-200 villages with a population of about 100,000. The area will be in the charge of a development officer who will have at his disposal the services of specialists in such fields as farm management, animal husbandry, co-operation and marketing, and health and sanitation. He will also, with the help of two supervisors, direct the activities of the village workers, each of whom will be responsible for 5 to 7 villages.

60. The Village AID programme will be successful if it releases and organises the very large and frequently unrecognised resources that exist in every village, and stimulates the spirit of self-help and co-operation which can lead to steady , progressive improvement in village life year after year. The key to this is the assistance and advice of the village worker, trained to help the villagers to find ways to solve their own problems, and directed and guided by the development officer. The programme is planned to expand as rapidly as the necessary staff can be trained. During the present Plan period, about one-quarter of the rural population will be covered by organised Village AID development areas, that is about 26,000 villages and 17 million (1·7 crore) people. By 1965 it should be possible to cover most of the rest of the country.

61. Village AID requires prompt and efficient assistance from government department to enable the villagers to carry out their plans for improving agriculture and livestock ; building roads, bridges, schools, wells, drains, and other facilities ; planting trees ; removing health hazards ; stocking fish ponds ; and doing the many other kinds of work which they want to do. Most of the government departments are not equipped at present to furnish the assistance the villagers will need ; the Plan provides for substantial expansion and improvement in the services of the various departments.

62. The Village AID programme offers tremendous hope for the rural people. It will not only bring them rapid and steady economic and social improvement, but also show them how to organise together in co-operatives and other local democratic institutions which can provide the basis for a great strengthening of the country's political life.

**Development outside Village AID areas**

63. The Plan provides also for assisting the development of villages outside Village AID areas. These villages too can improve themselves with the help of technical advice and material help from the Government, although their progress will be faster when they can have the full benefits of the services of village workers in organised Village AID areas. These villages too can improve themselves with the help of technical advice and material help from the Government, although their progress will be faster when they can have the full benefits of the services of village workers in organised Village areas. The Plan makes provision to assist development schemes organised by villagers outside the Village

AID areas to solve agriculture, health or other problems ; the funds provided for this purpose will be disbursed under the control of the district officer. Special provisions have been made for the Trible Areas.

64. The further expansion of the Village AID programme and the scheme for village improvement outside Village AID areas is especially desirable in East Pakistan, where the proportion of the population living in rural areas is higher than in the country as a whole. The reserve for additional East Pakistan schemes will provide for such an expansion, if technical and administrative obstacles can be overcome.

65. The estimated cost of these programmes is as shown in Table 5.

### TABLE 5

*Public expenditure on Village AID, etc, 1955—60*

(Figures can be read in millions by removing decimals)

| | | (Crore rupees) |
|---|---|---|
| Village AID : | | |
| Development funds (including credit funds) ... ... ... ... | 13·2 | |
| Administrative costs ... ... ... ... ... ... ... | 5·1 | |
| Training of village workers and other village AID personnel ... ... | 3·0 | |
| Sub-total ... | | 21·3 |
| Development outside Village AID areas : | | |
| General programme ... ... ... ... ... ... ... | 2·5 | |
| Tribal Areas ... ... ... ... ... ... ... | 0·5 | |
| Sub-total ... | | 3·0 |
| Total ... | | 24·3 |

66. These sums do not include costs to be incurred by the departments furnishing the technical specialists for the Village AID programme, nor do they include the very sizeable amounts to be contributed by the villagers themselves either in money or in labour and materials.

## AGRICULTURE

67. During the present five-year period, agricultural development must be given very high priority. Progress in the past has been inadequate—production per acre has fallen for some crops, and total food production has not kept pace with the growth of population. Among the other reasons for high-priority treatment are : the country's food supply is vulnerable to poor weather conditions and must be made secure ; the bulk of the people (about 75 per cent) depend upon agriculture for their living ; improvements in income from agriculture are the best means to raise general standards of living ; and the country's exports can be increased in the short run mainly through increasing the output of certain agricultural products.

68. The targets for increasing agricultural output during the Plan period are as shown in Table 6.

### TABLE 6

### *Agricultural output targets, 1955—60*

(Figures can be read in millions by removing decimals)

| | Unit | Output in base periods* | Output in 1959—60 | Increase per cent. |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
| Food grains : | | | | |
| Rice ... ... ... ... ... | Thousand tons | 8,320 | 9,215 | 11 |
| Wheat ... ... ... ... ... | „ | 3,435 | 4,020 | 17 |
| Maize ... ... ... ... ... | „ | 395 | 49 | 25 |
| Others ... ... ... ... ... | „ | 723 | 820 | 13 |
| Fibre crops : | | | | |
| Jute ... ... ... ... ... | Thousand bales | 5,565 | 6,400 | 15 |
| Cotton ... ... ... ... ... | „ | 1,630 | 2,260 | 38 |
| Miscellaneous : | | | | |
| Fruit and vegetables ... ... ... ... | Thousand tons | 4,198 | 4,920 | 17 |
| Sugar cane (gur equivalent) ... ... ... | „ | 1,059 | 1,460 | 38 |
| Tea ... ... ... ... ... | Crore pounds | 5·3 | 6·1 | 1·3 |
| Tobacco ... ... ... ... ... | „ | 26·2 | 30·4 | 1·6 |
| Fish ... ... ... ... ... | Thousand tons | 256 | 334 | 30 |
| *Forest Products* : | | | | |
| Timber (sawn and square) ... ... ... | Thousand tons | 5 | 43 | 750 |
| Timber (round) ... ... ... ... | „ | 550 | 585 | 6 |

*Base period figures are usually averages of production in a recent three to five-year period.

69. These targets are very ambitious in terms of past accomplishments, but not in terms of the country's needs. In general we have found that the expansion of programmes to improve agriculture will be limited during the Plan period more by shortages of trained staff and the lack of schemes and adequate administrative arrangements than by funds or physical resources. We have provided for the maximum expansion in agricultural programmes which seems feasible, but we hope still greater efforts will prove to be possible, and we believe finance can be found if suitable schemes and the technical staff and organisation to carry them out are available.

**Field crops**

70. Increases in the output of field crops will come in large part through increasing the yield of crops per acre—the present yields are among the lowest in the world—and in part through bringing more areas under cultivation.

71. The Plan provides for research on improved varieties of rice, wheat, sugar cane, maize, oil seeds, cotton, jute, and other crops. Because of the time taken to develop and test new varieties, however, most of the increase in production during the Plan period must come from the rapid adoption of the best varieties already evolved. The existing arrangements for the production and distribution of improved seeds are quite inadequate ; the Plan provides for the establishment of a number of new government seed farms to produce nucleus seeds, which would then be multiplied partly at government farms but primarily by registered private growers, and sold to cultivators.

72. The preparation and use of natural manures such as farmyard manure, green manure, compost, oil cakes, fish meal, and bone meal will be stimulated through the agricultural extension services and the Village AID programme. We expect the use of chemical fertilisers, now running at about 50,000 tons a years, to expand to over 250,000 tons a year by the end of the Plan period. In the initial years the use of fertiliser will be subsidised to encourage its widespread adoption, but the subsidy should be gradually reduced over a period of years.

73. Losses caused by insect pests and plant diseases probably average from 5 to 15 per cent of the total annual value of crops, and are much larger in epidemic years. For combating pests and diseases, there are some good research organisations, but means for control are inadequate. The Plan would strengthen the extension services to achieve effective control of the pests and diseases which attack the principal crops. The Plan provides also for research on control by aerial measures, power sprayers and dusters, and hand equipment in order to ascertain the methods best suited to local conditions.

74. Under present conditions, with a large unemployed and under-employed labour force available in rural areas, and a stringent shortage of foreign exchange, it is necessary to limit the import of new agricultural machinery. Only if it can be demonstrated that tractors are necessary to do work which could not be done otherwise—breaking heavy ground in certain newly-irrigated areas is a possible case—should new tractors be imported until the results of research proposed in the Plan give the basis for a longer-term policy. It is necessary to complete the several agricultural workshops which are being constructed, and which among other services will repair and maintain tractors.

75. About three million (30 lakh) acres of additional land will be brought under cultivation during the Plan period. Of this about one million (10 lakh acres) will be in large compact blocks of land not now cultivated and will require major colonisation efforts. Colonisation costs in these areas will be heavy. Where large areas of land are involved, new crop patterns need to be worked out, and extensive and complicated co-ordination of administration is necessary, we recommend that semi-autonomous development authorities should be set up to manage the development of the areas and to expedite colonisation and other activities necessary to put the water to ese. To explore possibilities of rapid development, some of the new land in large blocks might be leased on a pilot project basis for a limited number of years to private companies. The large area of the uncultivated land awaiting

colonisation lies in Ghulam Mohammad Barrage. This will constitute a new task of development on a major scale. A development Authority should be set up immediately to undertake colonisation ; because of the shortage of labour it will present special problems, and the Government should settle the policies needed for rapid development including those relating to the imports of cultivators from congested areas in the country.

76. The Plan provides for additional measures to regulate markets, enforce uniform weights and measures, extend the grading of produce, arrange daily broadcasts of agricultural prices, and construct storage facilities, including cold storage.

77. Storage is necessary in rural areas and market towns as a part of the credit and marketing system ; the Plan provides for additional stores and warehouses and for giving greater care to stored crops in order to protect them against insects, decay, and other types of loss. Storage facilities are required by the Government also in order to have reserves against bad crop years and to help to stabilise prices from year to year. Present targets of the Government are to raise the capacity for storing food grains to about one million (10 lakh) tons in order to provide space for reserve stocks of about 600,000 tons. In our view these targets for storage capacity and for reserves are inadequate. As an interim measure we have proposed an additional 150,000 tons of storage capacity, half in each Wing. In order to give adequate consideration to this important matter, and reach agreement on a firm programme, we recommend a joint review of the food grain storage problem by the Central and Provincial Governments so as to reach conclusions on amounts and locations of further storage, purchase and sales arrangements, and related questions.

### Fisheries

78. Pakistan has large fisheries resources, both in the ocean and in inland waters, which can be used as an important source of high-quality food, and to some extent of foreign exchange earnings. Two vessels for exploration of inshore and ocean fishing are provided in the Plan to supplement the two now in use, and a number of marine engines will be purchased for mechanising private fishing craft ; co-operative societies for credit and marketing will be promoted in the fishing villages along the sea coasts ; the fish harbour at Karachi will be completed, and will be provided with facilities for ice-making, cold storage, and net repair ; and two diesel-powered vessels with refrigeration facilities are to be acquired for bringing fish from the coastal villages to the Karachi market. A terminal market is proposed for Chittagong in East Pakistan.

79. Inland fisheries are particularly important in East Pakistan. Research is under way concerning fish which can breed in confinement, such as tilapia from Thailand and tricho-gastor from Singapore. Provision has also been made for research on improving fishing gear, methods of feeding, cleaning ponds, fish culture in paddy fields, and allied subjects. A large number of fisheries specialists will be trained to carry out extension work particularly in Village AID areas. Co-operatives for credit and marketing will be encouraged where fishing is an important commercial activity. A terminal market is proposed for Khulna in East Pakistan, together with a transport service for the collection of fish in the Khulna area. A number of derelict tanks, ponds, and bhils in East Pakistan will be reclaimed for fish production during the Plan period, and a number of lakes, tanks and ponds will be similarly developed in West Pakistan. We are of the view that a good deal more can and should be done in this field, and hope that more schemes will soon be prepared by the Provincial Governments which will permit us to raise the targets of production.

### Animal husbandry

80. The total number of livestock in the country is not known because no complete census has been taken since 1945. However, the present number is probably greater than the existing feed supplies available in the country can support efficiently. The improvement of the quality and productivity of livestock is, therefore, a matter of great importance. A livestock census for the entire country is badly needed ; the Plan provides for this as a matter of high priority.

81. The Plan provides for strengthening the existing cattle breeding farms and for opening 16 new ones. Sires from these farms will be distributed in the rural areas—if possible to village co-operative organisations for up-grading the local stock. The Plan also provides for eight new poultry farms, and five new sheep-breeding farms with the same end in view. In addition, private breeding farms, established with government assistance, will be encouraged, particularly in the areas to be colonised. The Plan provides for considerable improvement of the equipment and buildings of existing veterinary hospitals and dispensaries, and also for opening 52 new hospitals and dispensaries, and more than 20 mobile dispensaries. Preventive measures against diseases will be strengthened, and quarantine restrictions are recommended to check the spread of contagious diseases. We also recommend research on the control of foot and mouth disease under local conditions.

82. Two milk supply schemes, for Dacca and for Lahore, are proposed during the Plan period, and a pilot meat-packing plant is suggested for Quetta. Salvage farms to protect dry cows from indiscriminate slaughter are proposed near Dacca, Lahore and Karachi.

83. Improvement in the number of animals as well as their quality requires an increase in supplies of feed and fodder. Provision has been made for research on the possibilities of making hay in areas where grains cannot be grown economically, on the best combinations of feed rations, on using plants and grasses not now used for feed, and on the possibilities of using waste products such as stubble, bagasses, and molasses. When the results of this research are available, it will be possible to draw up complete programmes for improving the feeding of livestock.

### Range management and soil conservation

84. In large part, the problem of increasing the amount of feed for livestock is a problem of improving the ranges. Particularly in large areas of West Pakistan, the ranges can be improved to support several times as many animals as they do now. The major steps needed are to control grazing, to conserve water and to promote the growth of better grasses and plants. We propose the establishment of a Provincial Range Management Board comprising the heads of all departments concerned with the use of ranges, and subordinate District Range Committees to draw up and put into effect programmes for improving and using the ranges in their areas.

85. Similar action is required for soil conservation, which is an urgent problem particularly in some parts of West Pakistan where deforestation and the cultivation of sloping land and sandy soil has led to severe erosion. Soil conservation is necessary on range lands as well as in forests and cultivated areas ; working plans for soil conservation should cover complete catchment basins. Existing research work centred in Quetta and Rawalpindi should be continued ; to utilise the results of research we propose Soil Conservation Committees at provincial headquarters and in each district.

## Forestry

86. The country's major forest reserves are in the Chittagong Hill Tracts and Sunderbans of East Pakistan, and in the high hill ranges of northern West Pakistan. The Plan provides for building access roads to exploit these timber resources. In addition, in the Chittagong Hills where the terrain is too difficult for logging by human labour, provision has been made for the extensive use of modern logging machinery which has proved its worth in a pilot project. Sawmills, seasoning kilns, and creosoting plants are also provided for, some of which can and should be set up by private enterprise. The major development of the Sunderbans during the Plan period will be for the purpose of providing wood pulp for the newsprint factory to be erected at Khulna.

87. The Plan provides for surveying forest resources, and for bringing under scientific management the unmanaged forests of the high hill regions of the North-West, and the private "sal" forests of East Pakistan. New firewood resources will also be developed through planting firewood species in the hill belts below the timber forests ; in waste-lands ; along railways, roads and canals ; and in the areas to be colonised.

## Agricultural research, education and extension

88. The heart of all these programmes in the fields of agriculture—whether affecting field crops, animal husbandry, range management, fisheries, or forestry—is the careful and steady expansion of research, education and extension programmes. During the present Plan period, the fundamental factor which will limit the pace of agricultural development is the shortage of technical personnel. The Plan places very great emphasis on training and the need for higher salaries and better conditions for agricultural specialists, but the shortage will remain critical throughout the Plan period.

89. The Plan provides for substantial improvements in the Agriculture, Animal Husbandry, and Forestry Colleges and the research institutions associated with them, and for expanding their facilities to train additional types of specialists (fisheries specialists, for example). In order to meet the emergency needs for large numbers of extension workers, especially in connection with the Village AID Programme, we also propose special short training and refresher courses.

90. Additional research stations will be established during the Plan period. The major need in the field of research, however, is to make better use of existing research facilities, by organising well-planned research programmes specifically designed to solve the major problems confronting the villagers in their daily lives. New lines of research need to be opened up, such as research in farm management-determining the best patterns of land use and crop production in different parts of the country, the best size of cultivation units, and the costs and returns of using different types of farm equipment. Provision has been made also for a census of agriculture and livestock.

91. Research in seed improvement or the best ways to use fertiliser or water is fruitless unless the results are made available to the cultivators through extension services. The Plan provides for a substantial increase in the number of extension workers, who will work through the Village AID programme in Village AID areas and under the Departments of Agriculture, Animal Husbandry, and so on, in other areas. It is of vital importance that better training and supervision should be given to extension workers and that their pay and status should be improved.

**Rural credit**

92. There is no doubt that a sound long-term credit programme should be based on the co-operative principle. Successful credit co-operatives must be large enough to afford paid secretaries. Members of the co-operative societies should understand the purpose of the co-operative movement and the business principles upon which it must operate. A start should be made, experimentally, by granting loans on the basis of sound farming plans, to ensure proper use of the borrowed resources. For these reasons very close co-ordination is necessary between the rural credit system and the Village AID and extension organisations.

93. At present large numbers of co-operatives are small and inefficient ; many of them are insolvent, and they can provide only a very small part of the credit requirement of the farmers. It will take a long time to infuse the co-operative spirit, establish more societies, and train the managers and other specialists who are essential for the successful operation of the co-operative societies. During the Plan period a beginning must be made. An Agricultural Bank will be established in conjunction with the State Bank; it will be the centre of initiative and planning for the new rural credit system, and will stimulate and organise the necessary training facilities. The Bank will work closely with the provincial co-operative banks in developing a programme for reviving and extending rural credit co-operatives. It will take some time to accomplish major results, but every effort must be made to ensure the maximum use of efficient co-operatives, and the development of those that can be revived and improved. The Agricultural Bank must try to make its facilities available as rapidly as possible, in particular where no credit agencies exist or present agencies cannot be used. A conference should be held at the highest level to provide clear and firm guidance on major policy issues concerning the co-operatives, on which sharp differences of view now prevail and are preventing the rehabilitation and expansion of co-operatives. At the same time, *taccavi* loans should be used more widely than they have been in the past. District officer should be provided with funds and empowered to grant loans, under established policies concerning interest rates and amounts of loans for different purposes. The expanded *taccavi* system cannot be expected to meet more than a part of the need, but it offers way to help to fill the gap while the permanent co-operative system is being rehabilitated, organised and expanded.

**Land reforms**

94. In East Pakistan, work on land reform has already started under the Act of 1950, which provided for eliminating the many intermediaries who had grown up under the Permanent Settlement. The East Pakistan Government expects soon to complete the acquisition of all intermediary rights, as the first step towards a complete re-organisation of the pattern of land ownership and tenancy rights in the province. According to press reports they had decided to acquire all intermediary rights with effect from 14th April, 1956.

95. In West Pakistan, ownership and cultivation of land is governed by the different laws which were in force in the several provinces and states before the unification of West Pakistan. It is necessary to provide for more uniform ownership and tenancy laws, and to move towards an equitable system of rights in the land, both to assure maximum production from the land and to improve social justice. It is also necessary to continue and increase the programme of consolidating small fragmented holdings into larger and more economical units.

96. Some additional schemes for the development of agriculture are under preparation in East Pakistan, and more should be done in this field which is so important to the economy of the country. If sound schemes can be prepared, the training of technical personnel

expanded sufficiently, and the rate of execution on existing schemes stepped up, the programme should be enlarged especially in such fields as extension, storage, distribution of manures and fertilisers, training of agricultural technicians, fisheries and the setting up of co-operatives.

97. Table 7 shows the estimated cost of the different programmes under the general heading of Agriculture.

### TABLE 7

*Public expenditure on agricultural development*, 1955-56

(Figures can be read in millions by removing decimals)

| | (Crore rupees) | |
|---|---|---|
| Field crops : | | |
| Crop breeding and seed schemes | 6·1 | |
| Manures and fertilisers | 17·8 | |
| Colonisation | 11·5 | |
| Marketing and storage | 5·4 | |
| Education, research and extension | 3·7 | |
| Other | 9·7 | |
| Sub-total | | 54·2 |
| Fisheries | | 2·8 |
| Animal husbandry : | | |
| Breeding | 3·2 | |
| Disease control | 1·3 | |
| Education and research | 2·6 | |
| Other | 2·2 | |
| Sub-total | | 9·3 |
| Range management and soil conservation | | 1·6 |
| Forestry : | | |
| Extraction and utilisation | 4·0 | |
| Education and research | 2·5 | |
| Afforestation | 3·1 | |
| Other | 0·4 | |
| Sub-total | | 10·0 |
| Rural credit | | 9·5 |
| Consolidation of land holdings | | 1·2 |
| Total | | 88·6 |

## Water and power development

98. A large programme of water and power resources development was under way at the beginning of the Plan period. The Plan provides for continuing the programme in West Pakistan, and a rapid increase in the size of the programme in East Pakistan.

99. Water resources must be developed in the most efficient manner to serve all possible uses—irrigation, flood regulation and drainage, hydro-electric power production, transport, and others. In addition, hydro-electric and thermal power stations must be planned to complement each other in an integrated programme of power supply. In order to accomplish these purposes, detailed surveys and comprehensive plans must be made to ensure the greatest benefits at the least cost, and to promote orderly and systematic development. The Plan places great emphasis upon general investigations of water and power resources, which are necessary in order to formulate long-range, comprehensive development programmes. Effective and unified organisations for water and power development are necessary to design, construct, and operate major inter-dependent works of the proposed system.

100. Programmes for water and power development must be devised to take account of the natural conditions of different regions. There are three such natural regions in Pakistan: the humid region of East Pakistan ; the area drained by the River Indus and its tributaries and the adjoining tracts in West Pakistan ; and the area drained by the coastal tributaries and desert streams, comprising most of the Quetta and Kalat Divisions, and adjoining tracts.

### East Pakistan

101. The major purposes to be served during the Plan period in East Pakistan are as follows :—

(*a*) To provide irrigation water to large areas for double cropping and increasing the production of single crops ;

(*b*) To increase agricultural production in many areas through local drainage and flood regulation schemes ;

(*c*) To prepare plans for and start on a comprehensive programme of new methods and major works for increasing agricultural productivity and reducing flood damage ;

(*d*) To protect large areas from the saline waters of the tides ;

(*e*) To improve waterways for inland water transport ; and

(*f*) To triple the power supply available at the beginning of the Plan period.

102. The delta-building rivers of East Pakistan affect all economic development and activities in the region—agricultural and industrial production, transport and communications, and every aspect of rural and urban life. The effects may be beneficial if development programmes are planned to take into account the natural characteristics of the rivers ; the effects will be destructive if those characteristics are violated or ignored. A beginning has been made in planning water development schemes which are consistent with the regimen of the rivers and designed to serve as many useful purposes as possible. Two major multi-purpose projects, the Ganges-Kobadak and the Karnafuli, are under way and will be carried forward during the Plan period. Two others, the Teesta Barrage and the Ganges flushing-*cum*-drainage scheme, are planned to start before 1960. The principles of the Ganges-Kobadak scheme in particular appear to offer promise of application to widespread areas in East Pakistan progressively over a long period of years ; the Plan provides for necessary surveys and investigations to prepare additional schemes of this type.

103. Recurring major floods present very large and urgent problems in East Pakistan. In addition to the large number of schemes included in the Plan which will improve drainage and diminish the effects of floods in some areas, major works and protective devices may be required to prevent loss of life and to reduce damage to property. Investigations are now in progress to devise methods and works for reducing flood hazards ; such schemes as are found practical and feasible as part of the water resources development programme should be undertaken during the Plan period in addition to those already proposed. The likelihood that additional flood regulation schemes will be prepared and approved is one of the major reasons for proposing the large reserve for East Pakistan development schemes not yet planned in detail.

104. Large schemes require considerable time for completion. In the meantime, it is essential that the existing productive capacity should be maintained, and further deterioration of land arrested. We propose that this should be accomplished by continuing the practice of accelerating drainage at the end of the monsoon through the construction of drainage ways. Such schemes are relatively small, and can generally be undertaken by those directly benefited. Technical services, materials, and essential equipment not available locally can be supplied by the Government. A substantial number of small drainage schemes are included in the Plan, and additional ones are now under investigation. Those that prove sound can be carried out by using the reserve.

105. Industrial demand for electric power has risen rapidly since independence—more rapidly than supplies have been expanded—and will continue to rise. Pumping water from low river flows for irrigation during the dry season, and pumping water for drainage during and after the wet season, may form a significant part of future power loads. The Plan provides for installing enough power capacity to overtake expected demand by 1960. The bulk of the additional power will come from the Karnafuli hydro-electric power plant, and from steam plants at Sidhirganj near Dacca and at Khulna.

106. Of the total cultivated land in the region, about 500,000 acres of crops were served in 1955 by irrigation schemes, and 800,000 acres by organised flood regulation and drainage works. Table 8 shows the expected results from developments included in the Plan.

### TABLE 8

*Acreage affected by East Pakistan development Schemes,* 1955—60

(Figures can be read in thousands by removing decimals)

| | During 1955—60 | Total ultimate results |
|---|---|---|
| | (Lakh acres) | |
| Area served by irrigation projects : | | |
| Additional area of crops irrigated | 1·70 | 13·40 |
| Improvement of existing cropped area by irrigation | 2·50 | 41·00 |
| Total area affected | 4·20 | 54·40 |
| Area benefited by flood regulation and drainage projects | 14·30 | 21·50 |

107. The total area of crops irrigated, therefore, will be nearly 1 million (10 lakh) acres in 1960, and 6 million (60 lakh) acres when schemes included in the Plan are completed. The area benefited by flood regulation and drainage works will be over 2 million (20 lakh) acres in 1960, and nearly 3 million (30 lakh) acres when schemes included in the Plan are completed. Table 9 shows the expected results from power developments included in the Plan.

### TABLE 9

*Power capacity to be installed in East Pakistan through development schemes, 1955—60*

(Megawatts)

| | Capacity existing in 1955 | Additions during 1955—60 | Retirements during 1955—60 | Net installed capacity in 1960 | Total ultimate results |
|---|---|---|---|---|---|
| Public supplies : | | | | | |
| Hydro ... ... ... | ... | 80·0 | ... | 80·0 | 160·0 |
| Thermal ... ... ... | 26·0 | 89·5 | 5·0 | 110·5 | 98·0 |
| Industrial plant ... ... ... | 41·0 | ... | 16·0 | 25·0 | ... |
| Total ... | 67·0 | 169·5 | 21·0 | 215·5 | 258·0 |

**River Indus and tributaries**

108. The major purposes to be served during the Plan period in this area are :—

(*a*) To begin the regulation of the uncontrolled flows of the Indus river and its tributaries for beneficial use, and for the reduction of flood damage ;
(*b*) To improve the water supply to irrigated lands ;
(*c*) To provide improved water supply for irrigation of lands now being cultivated ;
(*d*) To provide irrigation water for lands which are now uncultivated ;
(*e*) To reclaim areas now water-logged and saline ; and
(*f*) To double the power supply available at the beginning of the Plan period.

109. Successful and continued agricultural production in the area depends on a satisfactory solution of the water supply problem. In the absence of storage facilities, the limit to cultivation is set by the low point in water supply during the critical irrigation periods. Additional water can be obtained only by the storage, regulation, and conservation of surface water, and the systematic development of underground sources. The future development of irrigation on a large scale will depend on the storage of high river flows. The Plan includes provision for the investigation and selection of suitable reservoir sites, the preparation of detailed plans, and the starting of construction of major multi-purpose reservoirs, including the very large Mangla scheme.

110. To provide additional supplies for reclamation and improvement of existing irrigation, it is necessary that the Indus and its tributaries should be inter-connected. By the end of the Plan period, the Chenab and Ravi rivers will have been linked to the Sutlej river and work will have started on the Jhelum-Chenab link.

111. In the absence of regular and adequate rainfall, and of sufficient and suitably distributed surface water supplies, it is necessary to mobilise ever-increasing quantities of ground water for primary and supplementary irrigation. The Plan provides for an intensive and systematic investigation of ground water potential, and also for a programme of ground water development which can reasonably be achieved by 1960, taking into account the serious physical, technical, and economic limitations.

112. Drainage problems inevitably accompany irrigation development. Lack of drainage, if not remedied, may ultimately upset the agricultural economy of the region. Considerable research and investigation are necessary to evolve techniques of reclamation and drainage suitable to each particular area. The Plan provides for continuing and enlarging pilot reclamation schemes, and for extending proven methods to other affected areas. It is likely that during the Plan period the work accomplished in some areas will suffice only to offset progressive deterioration of land from salinity and water-logging in other areas. If progress in developing reclamation methods is as rapid as we hope it will be it should be possible in later years, particularly when Mangla is completed, to accomplish considerably larger results.

113. Two large multi-purpose schemes are included in the Plan—Warsak and Mangla. Three major irrigation projects are included—Ghulam Mohammad, Taunsa, and Guddu Barrages—as well as a large number of smaller schemes. Power demands for industrial and other purposes have risen rapidly since independence and will continue to rise during the Plan period. Reclamation requirements and the need for additional water supplies have led to plans for exploiting ground water resources by means of electrically-driven pumps for tubewells. The Plan provides for integrated systems of power generation and transmission in West Pakistan to give more power at a smaller cost. The power development programme is designed to provide sufficient power for all essential needs by 1960. The bulk of the additional power will come from the Warsak hydro-electric plant, and from steam plants using Sui gas for fuel in the lower Punjab area and at Karachi. Power from the Mangla project will become available after 1960.

114. The total area of irrigated crops in 1955 was about 22 million (2·2 crore) acres. Table 10 shows the expected results from irrigation developments included in the Plan.

TABLE 10

*Acreage affected by Indus Basin development schemes, 1955—60*

(Figures can be read in thousands by removing decimals)

| | During 1955—60 | Total ultimate results |
|---|---|---|
| | (Lakh acres) | |
| New area brought under cultivation ... ... ... ... ... | 23·50 | 42·60 |
| Old area given improved water supply and area reclaimed from water-logging and salinity. | 32·40 | 87·60 |
| Total area affected ... | 55·90 | 130·20 |

115. The figures in the above table do not include the development of irrigation, during or after the Plan period, on the schemes completed before independence, such as the Sukkur Barrage, because the information is not now available. But apart from such additions, the total area of irrigated crops will exceed 24 million (2·4 crore) acres in 1960, and 26 million (2·6 crore) acres when schemes included in the Plan are completed. Table 11 shows the expected installed capacity resulting from power developments included in the Plan.

TABLE 11

*Power capacity to be installed in the Indus Basin through development schemes*, 1955—60

(Megawatts)

| | Capacity existing in 1955 | Additions during 1955—60 | Retirements during 1955—60 | Net installed capacity in 1960 | Total ultimate results |
|---|---|---|---|---|---|
| Public supplies : | | | | | |
| Hydro ... ... ... ... | 62·6 | 200·0 | ... | 262·6 | 500·0 |
| Thermal ... ... ... | 98·0 | 231·0 | 40·0 | 289·0 | 231·0 |
| Industrial Plant ... ... ... | 51·0 | 47·0 | 12·0 | 86·0 | 47·0 |
| Total ... | 211·6 | 478·0 | 52·0 | 637·6 | 778·0 |

116. With respect to the Indus River and its tributaries it should be pointed out that India has claimed that it is entitled to withdraw supplies traditionally used or earmarked for projects in Pakistan. This has given rise to a water dispute and efforts are being made solve it through the good offices of the International Bank for Reconstruction and Development. Depending upon the outcome of these efforts, the present Plan will be revised as necessary. Negotiations are proceeding on the basis that the costs necessary to implement a settlement of the dispute will be shared in proportion to the benefits received by each country. As for the apportionment of expenditures incurred under the present Plan, the matter would be considered in due course.

### Coastal tributaries and desert streams region

117. This area is the least populated and developed in the whole of Pakistan. The Plan provides for a rapid expansion of water and power development, but the total results compared with other regions will be small, because the start is from such a low point. Investigation of further possibilities has therefore been given high priority as the key to further development. The principal purposes to be served during the Plan period are :

(*a*) To improve water supplies to lands now irrigated ;
(*b*) To provide irrigation water to new lands ; and
(*c*) To expand the power supply.

118. The perennial stream flows in the region are limited. The greatest possibility for the development of water resources lies in the conversion of short-term flood discharges into useable flows continuing over long periods. The Plan provides for the construction of a number of simple diversion structures, detention reservoirs, and canals. The scope for the construction of larger projects in this area is limited. There are, however, a few coastal tributaries which offer opportunities for major irrigation development. The Plan makes provision for exploratory work on two of the big schemes, and for building control structures on some of the major streams.

119. Ground water is destined to play an important role in the future development of this region. Efficient methods of recovering ground water at a reasonable cost, in tracts where cheap power is not available, have yet to be explored. The programme provides for the exploration and development of ground waters by means of open and tube wells. The Plan also includes experimental schemes for replenishing the underground sources of water supply by diverting flood waters.

120. Because of the scarcity of water, development must proceed on the basis of the most economical use of existing supplies. The Plan provides for conservation of water by reducing transportation losses in the canal system, through lining channels in sections of greatest loss, and by devising methods for improving the efficiency of karezes and for controlling flowing springs.

121. The total area irrigated in the region by all methods was about 400,000 acres per year before the Plan period, and the total installed power capacity at that time was about 3,000 k.w., all thermal. Table 12 shows the expected results from the projects included in the Plan.

TABLE 12

*Expected results from coastal tributaries and desert streams region development schemes, 1955—60*

| | During 1955—60 | Total ultimate results |
|---|---|---|
| Area served by irrigation facilities (acres) ... ... ... ... ... | 186,000 | 907,000 |
| Installed power capacity (k.w.) ... ... ... ... ... ... | 2,200 | 2,200 |

The total irrigated area will, therefore, be about 586,000 acres in 1960, and about 1·3 million (13 lakh) acres when the schemes included in the Plan are completed.

## GENERAL

### Atomic energy

122. The advent of atomic energy marks the beginning of a new chapter in the history of mankind. Apart from its potential destructive uses, atomic energy has numerous peaceful use. Among these the most important are the generation of power ; medical diagnosis, therapy and research ; agricultural studies ; physical and chemical research, industry, and the preservation and processing of foods and so on. The Government of Pakistan have set up an Atomic Energy Council consisting of a Governing Body and a Commission in order to study and exploit the possibilities of the use of the atomic energy in this country. Its functions will include the procurement, supply, manufacture and disposal of all radio-active substances, to carry out surveys of the radio-active materials, to assess the country's requirements and to take necessary steps for their fulfilments ; and to plan and establish atomic energy and nuclear research institutes at suitable centres. The Council is yet to be registered under the Societies Act, 1860. An Advisory Committee is proposed to be formed under the chairmanship of the Minister of Industries to assist the Council. The Commission will prepare a detailed programme of work in due course. The next few years will, probably, be a period of training, research and experiment, and much may not be possible by way of actual development. East Pakistan has limited hydro-electric potentialities and the use of atomic energy for the generation of power may provide a possible solution. This should be explored as soon as atomic energy installations can be set up in that province as a part of the development programme.

123. The programme which is to be framed by the Atomic Energy Council will be considered for inclusion in the Plan at a later stage if it is received in time before our final Report is submitted to the Government.

124. The estimated costs of the water and power development programmes for the whole of Pakistan during the Plan period are shown in Table 13.

### TABLE 13

*Public expenditure on water and power development,* 1955—60

(Figures can be read in millions by removing decimals)

| | (Crore rupees) | |
|---|---|---|
| General investigations : | | |
| Ground water | 8·6 | |
| Other | 3·2 | |
| Sub-total | | 11·8 |
| Multi-purpose development : | | |
| Karnafuli | 23·8 | |
| Warsak | 16·9 | |
| Teesta | 9·9 | |
| Ganges—Kobadak | 8·5 | |
| Mangla | 43·8 | |
| Other | 6·6 | |
| Sub-total | | 109·5 |
| Irrigation : | | |
| Taunsa Barrage | 7·4 | |
| Gudu Barrage | 11·0 | |
| Ghulam Mohammad Barrage | 7·7 | |
| Link canals | 14·3 | |
| Other | 34·3 | |
| Sub-total | | 74·7 |
| Flood Regulation and Drainage : | | |
| Ganges Flushing-*cum*-drainage | 3·7 | |
| Other | 6·3 | |
| Sub-total | | 10·0 |

TABLE 13—*contd.*

| | | |
|---|---|---|
| Power : | | |
| Sidhirganj Thermal Power Station ... ... ... ... ... | 3·0 | |
| Karachi Electric Supply ... ... ... ... ... ... | 6·2 | |
| Warsak High Voltage Station ... ... ... ... ... ... | 8·0 | |
| Sui Gas Power Station ... ... ... ... ... ... | 10·0 | |
| Upper and Lower Sind Thermal System ... ... ... ... ... | 6·7 | |
| East Pakistan Transmission and Distribution Schemes ... ... ... | 4·8 | |
| Other ... ... ... ... ... ... ... ... | 15·4 | |
| Sub-total ... | | 54·1 |
| Total ... | | 260·1 |

Since the allocation of costs on multipurpose schemes cannot be done exactly we can only estimate very roughly that about Rs. 1,100 million (110 crore) of this expenditure is for power something less than Rs. 1,400 million (140 crore) for irrigation, drainage and flood regulation, and the remainder for other purposes.

## INDUSTRY

125. Industrial development under the Plan is expected to consolidate the progress already made and further to expand the country's industrial capacity, leading to an estimated 70 per cent increase in production. Because of the limited resources available, it is especially important to select those lines of industrial development which promise the maximum results and which will contribute most to balanced economic development. Decisions in this field were therefore guided primarily by the importance of obtaining the greatest increase in output—or in national income—from the resources devoted to industrial development. In making the calculations and taking decisions on individual schemes or expansion programmes, their foreign exchange implications in terms of savings or additional earnings were given particular weight. The total output of all industry, large and small, is expected to rise from about 7,500 million (750 crore) rupees to about 13,000 million (1,300 crore) over the Plan period. The net improvement in the balance of payments, to be realised in large part from industrial development, is expected to be about 500 million (50 crore) rupees per year by the end of the Plan period. In addition to these general objectives, we have also taken account of more specific considerations—the need to support and provided for other parts of the development programme (*e.g.*, by manufacturing cement) and particularly its agricultural component (*e.g.*, through increased fertiliser production) ; the need to develop industries which will support those now in existence (*e.g.*, containers) ; and the need to utilise to the maximum extent possible indigenous raw materials and by-products now not fully exploited. The objective of providing for a maximum increase in employment has been particularly important in framing the programme for small industries. The increase in direct employment in large-scale industry is expected to be about 200,000 ; the increases in small-scale industry and through indirect effects are very difficult to estimate but they would be larger.

126. Two main methods are available for promoting industrial development ; to produce more with the facilities already available, and to establish new capacity. We have given first priority to the former which yields larger results from existing investment. The

Plan provides for substantial expansion in the training of managers, technicians, and workers ; for establishing industrial research and advisory services ; for modernisation and rationalisation of existing industry for multiple-shift operation ; and for a considerably improved flow of raw materials and spare parts—although the shortage of foreign exchange will continue to limit the volume of imports for some less essential industries. To establish new capacity and modernise present capacity, the Plan provides a selective programme of investment of both private and public funds in those fields which promise the best results. Some of the important increases in capacity which are planned are shown in Table 14.

### TABLE 14

*Projected large-scale industrial development*, 1955—60.

(One crore = 10 million ; one lakh = 100 thousand).

| Industry<br>1 | Unit<br>2 | Installed capacity April, 1955<br>3 | Installed capacity April, 1960<br>4 | Investment required for increased capacity<br>5 |
|---|---|---|---|---|
| | | | | (Crore rupees) |
| Agricultural processing : | | | | |
| Cotton ginning ... ... ... ... | Lakh bales | 20 | 22·5 | 1·62 |
| Tea manufacturing ... ... ... | Crore pounds. | 5·5 | 6·0 | 0·6 |
| Food products : | | | | |
| Sugar ... ... ... ... ... | Tons | 115,000 | 235,000 | 22·59 |
| Cigarettes ... ... ... ... ... | Crores | 450·0 | 750·0 | 3·10 |
| Textiles : | | | | |
| Cotton textile mills ... ... ... ... | Lakh spindles | 16·8 | 20·5 | 21·26 |
| | Looms | 20,000 | 33,000 | |
| Jute manufactures ... ... ... ... | Looms | 3,300 | 12,000 | 17·30 |
| Paper : | | | | |
| Newsprint ... ... ... ... ... | Tons | *Nil* | 23,000 | 10·74 |
| Card/Straw-board ... ... ... ... | „ | *Nil* | 35,000 | 4·98 |
| Hard-board ... ... ... ... | „ | *Nil* | 12,000 | 1·92 |

TABLE 14—*contd.*

| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| Chemicals : | | | | |
| Sulphuric acid ... ... ... ... | Tons | 12,330 | 18,330 | 0·25 |
| Caustic Soda ... ... ... ... | ” | 6,000 | 26,000 | 4·09 |
| Rayon and Cellephane ... ... ... | ” | *Nil* | 5,400 | 7·02 |
| Penicillin ... ... ... ... ... | Lakh mega-units | *Nil* | 80 | 0·91 |
| Fertiliser ... ... ... ... ... | Tons | *Nil* | 162,000 | 7·72 |
| Cement and Glass : | | | | |
| Cement ... ... ... ... ... | Tons | 670,000 | 1,280,000 | 7·94 |
| Glass (hollow-ware and sheet) ... ... ... | ” | 20,000 | 44,800 | 1·50 |
| Iron and Steel : | | | | |
| Steel re-rolling ... ... ... ... | ” | 125,000 | 155,500 | 1·35 |

127. In addition to the industries listed in Table 14, a number of others will be started or expanded, whose output cannot be expressed in common units. For example, a ship-building and repair yard and dry dock will be completed at Karachi which will be able to construct ocean-going vessels. A ship yard will also be completed at Khulna to build and repair vessels for inland water transport, and the marine workshop at Narayanganj will be expanded and improved. A start will be made in the development of a steel industry based on indigenous coal and ore.

128. In order to carry out this industrial development programme, the Plan relies largely on private enterprise, which it treats as an agency for accomplishing stated tasks, and partly on public agencies. The Government has ample authority to make sure that private investment is properly related to the Plan. Moreover, the Plan provides for a large expansion of industrial research, advisory services, and government assistance, designed to help private businessmen in reaching the targets set for them. A special Planning and Development Department proposed in the Ministry of Industries would be charged with rendering all possible assistance and advice to private industry, both in setting up enterprises and in operating them. Public investment in large-scale industry will be made primarily through the Pakistan Industrial Development Corporation, and will be limited to cases where private enterprise is not forthcoming. The Pakistan Industrial Development Corporation, which has an increasingly large and complex task of management, will continue to turn over the Plants it builds to private enterprise as soon as possible.

129. The Plan provides for improving the efficiency and output of many small-scale and cottage industries, such as gur, vegetable oil, salt, bidi making, handloom weaving, ready-made garments, knitted goods, sports goods, bamboo ware, furniture, footwear, brick and tile, pottery, soap, surgical instruments, cutlery, household utensils, umbrellas, textile dyeing, and printing. The programme for developing small-scale and cottage industries includes the establishment of centres for training, management advice, and research ; the provision of credit and special assistance with materials and marketing ; increasing the efficiency of tools and equipment by such means as improved handlooms ; and the provision of small industry extension services particularly in connection with the Village AID Programme.

130. The development and use of fuels and minerals will be expanded. The pipeline to carry natural gas from Sui to Karachi was completed during 1955, and a pipeline from Sui to Lahore is to be built during the Plan period. Extensive exploration and drilling for petroleum are under way in both Wings and will be expanded. The annual production of coal is expected to rise by 500,000 tons, of gypsum by 90,000 tons, and of chromite by 9,000 tons.

131. The Geological Survey is to be expanded and improved, and a Bureau of Mines will be established to exercise unified control over the operations now performed by a number of different agencies connected with the development of mineral resources.

132. An industrial bank is proposed, with capital from private and government sources and from a loan by the International Bank for Reconstruction and Development. This bank will be able to make long-term loans to industrial concerns, and to participate in, or underwrite, equity issues.

133. The proposed industrial development programme is expected to complete the process of making the country self-sufficient in cotton and jute textiles, sugar, edible oil, cigarettes, paper, newsprint, strawboard and hardboard, leather goods, sulphuric acid, soda ash, caustic soda, penicillin and many other chemicals and drugs, cement, a variety of electrical goods, and a large number of other items. It will be possible to meet the bulk of the country's requirements of fertilisers, woollen textiles, canned fruits, and vegetables, rayon and cellophane, and hollow glassware. Natural gas will replace a large quantity of fuel that would otherwise have to be imported. Local manufacture of capital goods such as cement and railway wagons will be increased, and this will reduce somewhat the imports required for economic development in the future. A beginning will have been made in using domestic ore for steel production. Exports of jute manufactures will be increased greately. Substantial quantities of cotton yarn and cloth will become available for export. The exports of sports goods, surgical instruments, and of a number of other miscellaneous items which, though small individually, will add up to a substantial amount, will be greatly increased. In short, the country's dependence on imported goods should be considerably reduced, and export earnings increased.

134. The total estimated cost, both public and private, of the industrial development programme is as shown in Table 15.

### TABLE 15

*Public and private expenditure on industrial development*, 1955—60.

(Figures can be read in millions by removing decimals)

| | (Crore rupees) |
|---|---|
| Agricultural processing | 11·5 |
| Food products | 29·4 |
| Textiles and clothing | 47·0 |
| Paper and leather | 19·1 |
| Chemicals | 24·0 |
| Cement, glassware, ceramics | 13·0 |
| Engineering and electrical goods | 23·5 |
| Gas transmission and distribution | 21·4 |
| Other large-scale industries | 37·5 |
| Cottage and small-scale industries | 17·3 |
| Mineral development, except oil prospecting | 4·0 |
| Oil and gas prospecting | 41·7 |
| Industrial credit | 9·0 |
| Total | 298·4 |

135. Of this total, government investment is expected to amount to Rs. 1,076 million (107·6 crore), and private investment to Rs. 1,908 million (190·8 crore).

## TRANSPORT AND COMMUNICATIONS

136. There is a very marked contrast between the transport problems of East and West Pakistan. East Pakistan depends mainly on inland waterways, with shipping at present privately owned. West Pakistan relies mainly on the railways, which are publicly owned. Both need, though in different degrees, better roads ; both need port improvements.

### Railways

137. The railways could not be properly maintained during the depression of the nineteen thirties and World War II, and the arrears of replacements and repairs have only been partially overtaken since partition. The railways programme during the Plan period is, therefore, mainly a programme of rehabilitation, but the effect should be to increase their transport capacity substantially.

138. First priority is given to the track, much of which is in a poor state, requiring the rolling stock to be operated slowly and inefficiently. During the Plan period it is proposed to recondition all the main lines and the more important branch lines, at an estimated cost of 232 million (23·2 crore) rupees.

139. Sizeable orders for rolling stock have been placed since independence ; some 100 locomotives, 275 carriages, and 6,800 wagons had been delivered before the Plan period in addition to over 100 carriages and other stock manufactured in the railway workshops. About 100 locomotives, 600 carriages, 6,000 wagons and a small number of other items of rolling stock, such as rail cars, are expected to be delivered during the Plan period. Some of the new wagons and coaches will be manufactured in the railway workshops, which will be expanded and improved for the purpose. Expenditure on rolling stock is expected to be about 312 million (31·2 crore) rupees. Additional funds are provided in the Plan for development works, bridges, and other structures. Although no extension of the railway mileage is proposed, apart from sidings, for industry and similar minor additions, the improvement of track and rolling stock, if accompanied by measures to increase railway transport efficiency, should enable the railways to handle the increasing volume of traffic expected to develop during the Plan period. But the position will have to be kept under scrutiny to deal with any congestion which may appear.

### Tourism

140. The railways have in the past taken some interest in the expansion of tourism, but we believe that a broader approach and better organised efforts are required if tourism is to be developed as a source of foreign exchange by attracting increasing numbers of visitors from abroad. This requires improvement of transport for meeting the special needs of tourists, as well as the development of good hotel accommodation, guide services, places of interest and publicity. A special agency should be charged with drawing up plans to exploit more fully Pakistan's places of recreational, historical and cultural interest.

### Roads and road transport

141. About 1,800 miles of new roads are to be constructed, mainly in the least developed areas of the country, and 2,000 miles of existing roads improved. In addition, rural communities will be encouraged to construct village roads for their own use, with help

from the Government. Strong emphasis will be placed also on better maintenance of existing roads. East Pakistan faces special problems in road construction and maintenance because of the extensive waterways in the region, the liability to flooding, and the need to avoid interference with natural drainage in areas of heavy rainfall. The Plan provides for road-building research in both Wings ; this is especially important in East Pakistan.

142. Road transport services are provided by the Provincial Government on certain routes in West Pakistan. The efficiency of the existing services will be improved and the services will be extended to a limited extent to new routes otherwise unlikely to be provided with road transport services. The efficient development of road transport services by private enterprise will be encouraged in both Wings of the country.

### Inland water transport

143. The flat deltaic country, full of water courses, and the heavy rainfall point to waterways as the principal means of transport in East Pakistan; indeed, during the monsoon they are liable to become the only practicable form of transport in large parts of the Province. We recommend that during the Plan period a programme should be started to improve and develop the waterways and the craft plying on them. First, we propose the establishment of an Inland Waterways Board, to be responsible for dredging the channels, providing buoys, lights and other aids to navigation, developing inland ports and improving inland water craft and traffic operation. Second, we propose that government funds should be invested in improving water transport services. Third, we propose a large programme of research and development for the evolution of improved vessels suitable and economical on the inland waterways of East Pakistan.

144. The country's merchant marine consists of some 20 ships with a total tonnage of about 180,000. Most of these ships are old and obsolete and need replacement. Provision of 60 million (6 crore) rupees of government funds has been made in the Plan for the purchase of about 45,000 tons of new ships as the first step in a programme of rehabilitation and development, to enable Pakistani shipping to carry the coastal trade between East Pakistan and West Pakistan by efficient, cheap and regular services, and to make a modest beginning in international shipping. We suggest also that a public corporation should be established to provide shipping services as well as leadership for the shipping industry. A dynamic programme in shipping is over due and essential to impart reality to the unity of the country's economy. A merchant navy academy is to be established at Juldia Point near Chittagong to train personnel for the merchant fleet.

### Ports

145. During the Plan period 13 old berths of Karachi Port's East Wharf will be rebuilt along modern lines. The major portion of the development work on the port of Chittagong has already been carried out, but the construction of transit sheds and a few other items will be completed during the Plan period. Work will be continued also on Mangla Anchorage, mainly to improve the navigational aids, mooring facilities, and shore installations.

### Air transport

146. Pakistan's air transport services are in a process of rapid change, and the programme for their improvement and expansion is necessarily somewhat tentative. The Plan provides for improving airports, communications and navigation facilities, for training Pakistani personnel for civil aviation, and for extending air services, particularly in East Pakistan where surface transport is often slow and difficult. Provision has been made for new and replacement aircraft, particularly for local services.

### Postal services

147. The Plan provides for a substantial increase in postal facilities, notably in rural areas, where some 3,000 new post offices are to be opened, bringing the postal service within range of nearly every village. In addition, night services are to be added in many of the larger post offices, and a moderate programme for constructing new post offices and other buildings is included.

### Telecommunications

148. A long-term plan was started in 1954 for the installation of 48 new telephone exchanges and 62 extensions, permitting 49,000 new telephone connections. This plan also includes the construction of 24 trunk telephone exchanges and the expansion of high frequency wireless telephone connections between East and West, and with overseas points. We endorse this large programme, because of the crucial importance of good communications for a developing country, but we do not think the full programme now under way can be completed by 1960. We suggest that during the Plan period, about 210 million (21 crore) rupees should be spent on this programme with the following results :

| | 1955 | 1960 |
|---|---|---|
| Telephone exchanges ... ... ... ... ... ... | 155 | 203 |
| Telephone connections ... ... ... ... ... ... | 35,000 | 70,000 |

The full programme will be completed shortly after 1960.

### Broadcasting

149. Pakistan's broadcasting services are based on a combination of short-wave and medium-wave transmissions which will allow broadcasts from different parts of the country to be transmitted to all other parts. During the Plan period, 10 new transmitters will be installed, which will substantially extend the area of coverage and permit more diversified programmes to be transmitted. The most pressing need in the field of broadcasting is for a large number of cheap receiving sets to be made available; provision for meeting this need has been made in the Industry programme. The expansion proposed for broadcasting is indicated by the following figures :

| | 1955 | 1960 |
|---|---|---|
| Number of transmitters ... ... ... ... ... ... | 13 | 23 |
| Number of programme-hours daily ... ... ... ... ... | 105 | 162 |
| Total power of transmitters (k.w.) ... ... ... ... | 170 | 253 |

150. Transport is a major problem in East Pakistan and its inadequacy leads to local shortages and holds up development. Inland water transport is mainly carried on by private enterprise and the extent of government participation and assistance required for its development cannot be accurately foreseen. Some expansion of the programme for roads may also be necessary. Additional schemes that are sound and feasible can be developed against the reserve.

151. The public expenditures proposed for transport and communications during the Plan period are expected to be as shown in Table 16.

TABLE 16

*Public expenditure on transport and communications,* 1955—60

(Figures can be read in millions by removing decimals)

| | (Crore rupees) |
|---|---|
| Railways | 68·3 |
| Roads | 34·0 |
| Road transport | 2·5 |
| Ports | 11·6 |
| Shipping | 6·3 |
| Inland water transport | 8·3 |
| Civil aviation | 7·8 |
| Postal services | 1·7 |
| Telecommunications | 21·2 |
| Broadcasting | 2·5 |
| Total | 164·2 |

## HOUSING AND SETTLEMENTS

152. The development programme for housing and settlements has been prepared as the foundation for a systematic and continuous effort to provide the physical facilities such as houses, water supply and sewerage systems, and community buildings, necessary for a healthy and harmonious community life. The policies and plans are conceived in these comprehensive terms, and mark a new departure in this field. Government funds are to be devoted primarily to preparing surveys and plans, conducting research and training, installing water supply and sewerage facilities, and providing materials for assistance in house-building. Government housing programme will be directed almost entirely to meeting the needs of the lower income groups. In addition, there will be considerable private investment in housing.

### Surveys, planning, design, research and education

153. The first need for better housing and settlements is to make adequate surveys and detailed plans and designs for towns, houses, other buildings, and community facilities such as water and sewerage systems. The number of persons trained in planning and design must be rapidly increased, because the existing staff in the Centre and the Provinces is far too small. It will be necessary to establish special organisations, aided by experts, to prepare detailed plans and designs. Two schools of architecture and town planning are also proposed to be started during the Plan period, one at Dacca and the other at Lahore. In addition, vocational training centres will be set up for the building trades.

154. It would not be feasible to prepare individual designs for every building house, school, health centre, or other structure—to be built in the country. Instead, designs for basic types of houses and other structures will be prepared, suitable to the climatic conditions, ways of life, and local materials in different parts of the country. These type designs can be combined in different ways to provide solutions for individual cases.

155. Research and experimentation are needed to find the best and most economical building materials, methods of construction, house plans, and so on. Too many of the country's present buildings are copies of western structures—too expensive for available resources, and ill-adapted to the climate, family requirements, and other conditions. Experiments are especially needed to design houses which will be better than the average low-cost house of today, and which can be built largely or wholly by the house owner. Building research centres are to be established in Dacca, Lahore, and Karachi, and experimental houses will be built as part of the new settlements.

**Rural housing and community facilities**

156. The major effort to improve the facilities for rural communities during the Plan period will be to provide pure water supplies. Substantial numbers of village wells are required in both Wings; the objective in East Pakistan, for instance, is to provide 50,000, though not all of these can be installed during the Plan period. In addition, various types of model village houses and buildings will be constructed in rural areas, to guide the villagers in building for themselves. These activities will lay the basis for larger-scale efforts in rural areas in the future.

**Housing in towns and cities**

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157. The basic system for building new houses under the Plan in urban areas will be for the Government to prepare building plots, complete with water supply, drainage and underground sewerage, and roads. On many such plots, people will be able to build houses with their own resources; for some plots the Government will provide materials with which houses can be erected by prospective residents ; for other plots the Government will provide nucleus houses, which can be completed by the owners ; and for a small proportion of the plots the Government will build complete houses.

158. This system has two great advantages. First, the underground facilities will be put in at the beginning, providing a permanent, healthy basis for a growing community. With the water and sewerage systems installed to begin with, the houses on the plots can be gradually improved or rebuilt as the years go by and the owners' means permit. It will not be necessary at a later stage to go through the extremely expensive process of digging up developed areas in order to install water and sewerage systems.

159. The second advantage is that the system is flexible enough to provide for a wide variety of income levels and family circumstances. Many different combinations of assistance are possible, to meet the needs of people with very low, moderately low, and average incomes; no government assistance would be provided for those with higher incomes. In any case, arrangements would be made for virtually all the houses to be privately owned, either immediately or by instalments. The Government would own permanently only the houses necessary for those civil servants who are moved from place to place to sui the needs of the public service.

160. Under the Plan, 250,000 building plots will be created, of which 100,000 wil be set aside for refugees, not in separate colonies, but as part of ordinary communities to that refugees and other people would live together. Of the 250,000 plots, it is propose

that the Government should assist house construction on about 140,000 ; either by providing materials for " self-build " housing, or by building nucleus houses or complete houses.

### Improving existing towns and cities

161. A number of towns will be assisted to create appropriate local development authorities (such as improvement trusts), to prepare plans and begin their implementation. The Plan provides for large-scale water supply, drainage, and sewerage works for Dacca, Karachi, Chittagong, and several other cities.

### Government administrative centres

162. New administrative centres are needed in East as well as West Pakistan ; a new Federal Capital has to be built; and improvements or re-location are necessary for a number of division and district headquarters in both Wings. It is essential that these centres should be constructed on the basis of careful surveys and plans, because they will be built to serve for many decades, will be examples for much other construction, and will have much to do with the efficiency of government services. During the Plan period it will not be easy to go much beyond the stage of surveys, planning, acquisition of land, and preliminary work, for which provision has been made.

163. The problem of rural and urban water supplies, of a new administrative centre for the Province, and of making a start in improving some of the old overcrowded sections of the towns, is acute in East Pakistan, but the technical manpower to carry out these schemes is severely limited. If technical manpower can be made available, the development programme in these fields can be expanded and covered by the reserve.

164. The proposed public expenditure on housing and settlements during the Plan period is as shown in Table 17.

TABLE 17

*Public expenditure on housing and settlements*, 1955—60

(Figures can be read in millions by removing decimals)

| | (Crore rupees) |
|---|---|
| Survey, planning, design, research and education ... ... ... ... ... | 2·2 |
| Rural housing and community facilities ... ... ... ... ... ... | 4·3 |
| New housing in towns and cities ... ... ... ... ... ... ... | 52·0 |
| Improving existing towns and cities ... ... ... ... ... ... ... | 17·6 |
| Administrative centres ... ... ... ... ... ... ... ... ... | 1·0 |
| Total ... | 77·1 |

## EDUCATION AND TRAINING

165. Efforts during the Plan period to develop educational facilities will be concentrated on :

(*a*) Substantial improvement in the quality of primary, secondary, college and university education ;

(*b*) A large expansion of facilities for education and training in the technical, vocational, and professional fields to provide the trained manpower needed in all sectors of the development programme; and

(*c*) Opening new schools, as fast as resources permit, especially in areas which are relatively backward.

**Teacher training and educational research**

166. The key to the improvement and expansion of education is to increase the number of trained teachers. Thirty-nine per cent of the teachers working in the existing primary schools, and forty three per cent of the teachers employed in the existing secondary schools are untrained.

167. There are 99 institutions for the training of primary school teachers providing training facilities for 7,500 teachers a year. These institutions will be improved and 25 new institutions for the training of primary teachers will be opened, increasing the capacity of primary teacher training institutions to 10,500 a year.

168. Institutions for the training of middle-school teachers now number 14, with an annual output of 1,000 teachers. These institutions will be strengthened and two new institutions will be opened, raising the number of teachers trained annually to 1,250.

169. Seven training colleges and two departments of education attached to universities now give professional training to graduates. These institutions train 500 persons annually. Two new colleges will be opened, bringing the output of trained graduate teachers to 800 per year. Five education extension centres will be opened to provide refresher and special training courses to teachers and inspecting officers already in service.

170. By the end of the Plan period the number of untrained teachers in primary and secondary schools will be reduced to small proportions, and the quality of training will be improved.

171. Educational research is imperative to provide leadership capable of critically examining the inherited methodology and curriculum, and of replacing its outmoded elements by new and better system to produce citizens educated for a democratic and rapidly-developing country. Institutes of Educational Research are to be established at two universities during the Plan period, and research will be conducted also at teacher training colleges and other educational institutions. Each university will be encouraged to establish or strengthen a faculty and a department of education.

**Primary and secondary education**

172. A system of universal primary education is imperative, but considering the costs and the problem of supplying trained teachers, we do not think it reasonable to expect to reach this goal in less than twenty years. During the present Plan period, about 21,391 existing primary schools will be improved and approximately 4,500 new ones opened. The emphasis in West Pakistan will be on improving quality and adding new schools in previously neglected areas ; in East Pakistan, which is relatively better off in so far as the number of schools is concerned, the emphasis will be on widespread improvement in the quality of primary education. Normally, local communities will be expected to provide land and buildings ; the Government will provide teachers and supervision ; the cost of supplies and learning materials will be shared by both. By the end of the Plan period, the increase in the number of children attending primary schools will be more than one

million. But the main benefit would be that education will improve in quality and effectiveness. At present over 50 per cent of the school age population is in school, but in large parts of the country most of the pupils in primary school drop out before completing their courses. We expect that with the improvement in quality, the schools will be enabled to retain most of their pupils till the end.

173. Secondary education greatly needs strengthening through emphasising the history and ideals of the country, to develop individual character and dignity ; balancing literary studies with improved courses in mathematics and science ; and adding courses to prepare pupils for careers in agriculture, teaching, social welfare, commerce and industry. The aim is to develop well-rounded, multi-purpose secondary schools, with an agricultural, technical, or commercial bias depending upon the location, but giving to secondary school pupils a good general education, rather than limiting them to a narrow and premature specialisation. In East Pakistan, it is proposed to strengthen 500 high schools by grants-in-aid, providing for increase in teachers' salaries, curriculum diversification and additions to buildings and equipment; to introduce vocational agriculture in twenty high schools and commercial and industrial arts in another 16 ; and to develop junior high schools by upgrading some primary schools, down-grading some weak high schools, improving some of the existing schools, and changing 80 of these into multi-purpose schools. In West Pakistan, 150 will be upgraded to high schools ; 75 new government schools will be established ; grants-in-aid for building will be given to 100 private schools ; 500 middle schools and 100 high schools will be improved by adding or strengthening science and pre-vocational and industrial arts courses.

174. This programme for primary and secondary education is very ambitious and will stretch the administrative and teaching capacity of the educational system to the maximum. Its results are expected to be substantial ; it will not only bring about a better distribution, but will also shift the emphasis from mere book-learning to a more creative and purposeful education.

### Colleges and universities

175. Colleges will be improved during the Plan period primarily through better training of staff, provision of adequate hostel accommodation, addition of scientific and laboratory equipment, and improvement of libraries. These needs must in general take priority over construction of new buildings, though in some cases the latter are equally important. The Plan provides for furthering the education of promising students whose financial means prevent them from carrying their education to the fullest limits of their promise and talent. It is proposed to meet from public funds the average cost of Rs. 1,200 per year, excluding tuition fees which will be waived, for 600 talented boys and girls each year ; provision is made for the continued education of about 25 per cent, for some of them in professional colleges, such as medicine and engineering. If this programme meets with success, it should be expanded, first to include pupils in matriculation classes and subsequently to increase the numbers. Provision has also been made with a similar purpose for awarding overseas scholarships to 35 outstanding boys and girls to continue their studies in foreign universities.

176. Four of the country's six universities—Rajshahi, Peshawar, Hyderabad and Karachi—are in the early stage of development, and the two older universities—Lahore and Dacca—badly need extension. A sizeable programme of construction for the universities is unavoidable. As in the case of the colleges, however, the first needs of the universities are to improve their staff, equipment, laboratories, and libraries. A number of new

departments of study will also be opened. In order to improve the quality of teaching, 220 overseas scholarships for further education and training are proposed for college and university teachers.

177. It is essential to develop an integrated and unified system of higher education in order to raise standards and to avoid wasting large amounts of money through duplication. At the same time, higher education must be freed from too close political and administrative control by government departments. We therefore recommend the establishment of a Central University Grants Commission and Provincial University Grants Committees to make grants to universities on the basis of comprehensive long-range plans.

**Technical education and training**

178. Technical training is exceptionally important in a rapidly-developing economy. Much of this training is the responsibility of private business concerns ; the best way to train skilled personnel, who do not require professional education, is under supervision on the job. Schemes for training-within-industry and apprenticeship are endorsed by the Plan. The Ministry of Labour will concentrate upon developing high standards of labour performance, administering trade tests, and establishing standards of skill. The Ministry's labour training centres will be improved and expanded with this primary purpose in view.

179. The education system, particularly the secondary schools after being strengthened by the addition of science and pre-vocational courses, will increasingly produce students who are better prepared for skilled training on the job. In addition, the educational system will conduct a number of technical schools, to produce supervisors and engineering technicians in various fields. Polytechnics in Karachi and Dacca started classes in 1955, and two additional polytechnics, one at Rawalpindi and the other at Chittagong, are to be established during the Plan period. In addition, monotechnics in such fields as textiles, leather, and ceramics, will be established or strengthened. At the professional level, the existing colleges of engineering and technology will be improved, and two new colleges established. Present estimates are that by the end of the Plan period the country will be able to produce about 650 graduate engineers and 950 qualified engineering technicians per year ; these targets may have to be raised later on.

**Scientific research and other activities**

180. The Council of Scientific and Industrial Research will be supported and its programme of establishing regional laboratories will be carried forward. A Council of Social Science Research is to be established to encourage and co-ordinate research in economics, political science and sociology. Funds are provided in the Plan to establish and strengthen institutes of Islamic research and to carry forward the work of the Central Archives and Record Office.

181. The rate of increase in the development programme, especially in East Pakistan, will be limited by the number of technicians who can be trained. The needs are greater than can be met by the specific schemes which have been prepared, and an expansion of the programme for technical education seems desirable, particularly in East Pakistan. Additional schemes, if sound and realistic, can be accommodated in the Plan against the reserve.

182. Expenditures on education and training during the Plan period are estimated as shown in Table 18.

### TABLE 18

*Public expenditure on education and training*, 1955—60

[Figures can be read in million by removing decimals]

| | (Crore rupees) |
|---|---|
| Primary education ... ... ... ... ... ... ... ... | 10·8 |
| Secondary education ... ... ... ... ... ... ... ... | 15·5 |
| Teacher training ... ... ... ... ... ... ... ... ... | 3·5 |
| Colleges, including talent scheme ... ... ... ... ... ... ... | 8·2 |
| Universities, including overseas scholarships ... ... ... ... ... ... | 9·3 |
| Technical education ... ... ... ... ... ... ... ... | 5·2 |
| Council of Scientific and Industrial Research, Council of Social Science Research, Central Archives and Record Office, and miscellaneous. | 5·6 |
| Total ... | 58·1 |

Provision for specialised education and research has also been made in other development programmes notably Agriculture, Housing and Settlements, Health and Social Welfare.

## LABOUR AND EMPLOYMENT

183. The labour force in the country is undergoing three major changes which will continue for many years. First, it is growing in size with the growth in population. We do not have accurate current estimates, but the labour force in 1955 probably numbered 25 million (2·5 crore) and in 1960 it will probably number about 27 million (2·7 crore). Second, the labour force is becoming more educated and better trained. Every year more and more young people are going to schools and to institutions for specialised training. The country is desperately short of skilled workers and technicians in every field, and the deficiencies can be overcome only slowly, but nevertheless the average level of skill and training of the workers is rising. Third, there is a sizeable shift taking place from agricultural employment to industrial, commercial, and other non-agricultural employment, and a corresponding increase in the number of people living in urban areas. The available statistics cannot measure this shift accurately, but there is no doubt that it is taking place.

184. It is not possible to estimate precisely how many employment opportunities will be created by the development programme, but it is very roughly estimated that the total number of employment opportunities created during the Plan period will be about as large as the number of extra people seeking work. A manpower survey organisation has recently been established and as more information becomes available, it will be possible to make more accurate estimates of employment needs and employment opportunities.

185. Labour conditions in the country leave much to be desired. The workers are not well organised, and the trade union movement is yet in its infancy. Labour laws are not effectively enforced, and some new legislation is needed. These problems will become more acute as industrialisation proceeds.

186. During the Plan period the growth of trade unions will be encouraged, and, in order to promote joint consultation and collective bargaining, legislation is recommended to provide for statutory recognition of trade unions and to prevent victimisation on account of union activity. Conciliation staff is to be increased to improve relations between workers and employers and to reduce the incidence of industrial disputes.

187. Factory inspectorates are to be strengthened to permit more effective enforcement of labour laws. As the inspectorates grow stronger, labour legislation can and should be extended in scope to cover small establishments. Special officers to look after contract labour are to be appointed. A small factory advisory service is recommended for advising the Government on occupational health and safety, enforcement of labour laws, and the special problems of women workers.

188. A study is recommended to determine how best to fix and enforce minimum wages in industries now paying very low wages for long hours. Fair wage clauses are to be inserted in all public contracts.

189. The 20 existing employment exchanges are to be strengthened and improved, and 6 new exchanges are proposed. Labour Welfare Commissioners or other senior wholetime officers are proposed to be appointed both at the Centre and in the Provinces to study and introduce modern welfare practices, and to advise government organisations and private industry on labour welfare matters. A number of labour welfare centres are to be established in important industrial areas to provide health, education, and welfare services, and to stimulate self-help among workers and their families.

190. A social security scheme covering sickness, accident, and maternity benefits for certain classes of workers is recommended, to start in one or two industrial centres, and to be gradually extended to other centres as experience is gained. The scheme would be financed by compulsory contributions made by employers and employees. In addition, the larger employers would be required by law to establish provident funds to which workers and employers would make contributions.

191. Research and training are of very high priority in this field as in all others. We recommend that a Directorate of Labour Research and Planning be established in the Ministry of Labour, which would undertake research on manpower, wage rates, working conditions, and labour productivity. In addition, universities will be encouraged to undertake research and training on labour matters, and aid will be given to private organisations undertaking research and training in the labour field. The Government will establish training facilities of the various types of labour officers.

192. The development programme in the field of labour and employment is largely a programme of strengthening labour organisations, enforcing labour laws, improving worker-management relations, and advancing research and training. Its direct cost to the Government will be small, amounting to 12 million (1·2 crore) rupees only. Its results, however, will be far reaching, both from the social and economic points of view.

## HEALTH

193. The Plan provides for increased agricultural production, better nutrition, more widespread education, and better housing. All this will make a major contribution to improving health conditions. In particular, a very high priority has been given to the prevention of disease through the provision of safe water supply and improved sewerage ; a sum of about 300 million (30 crore) rupees has been provided for these purposes including that for new settlements in the Housing and Settlements programme.

194. Among direct expenditures on health measures, we propose the highest priority for preventive measures, including malaria and tuberculosis control, medical education, and maternal and child welfare. A country-wide malaria control programme will be undertaken during the Plan period, covering all areas of the country where this disease is prevalent. This programme is designed to take the country far towards eradicating malaria altogether. A BCG vaccination programme will be carried forward to protect people against tuberculosis ; to provide facilities for the isolation and treatment of existing cases, the number of beds in the truberculosis hospitals will be increased by 1,500. In order to afford protection against infection from other contagious diseases, the number of beds in infectious diseases hospitals will be increased by 380. Sixty-six new maternity and child-health centres will be established and will serve about 4 million (40 lakh) people.

195. In order to meet the shortage of medical personnel, the existing medical colleges and medical schools will be strengthened. Three medical colleges will turn out their first graduates, and one of the existing medical schools will be upgraded to a medical college. As a result of these improvements, the number of doctors produced annually will reach 600 at the end of the Plan period, as against 500 in 1955, and will rise further thereafter.

196. There are now 13 nurses training centres having a capacity for 700 students, but only 50 per cent of these training facilities are being used at present. Steps will be taken to assure full use of the existing facilities, and, in addition, to establish a new nurses training college and a post-graduate nursing college which would produce teachers for the nurses' training institutions. It is hoped that by the end of the Plan period the country will be turning out 200 qualified nurses every year.

197. Facilities for the training of sanitary inspectors, health visitors, compounders and midwives are also to be extended and improved. It is expected that the number of qualified sanitary inspectors or equivalent technicians will be increased by 1,500 and of health visitors by 600 during the Plan period. Four new centres are proposed for the training of compounders and four for the training of midwives.

198. There were in 1954 about 453 hospitals and 2,000 dispensaries in the country with a total of 23,000 beds. The Plan provides for developing and expanding a number of these institutions and for constructing a limited number of new ones in areas now poorly served. The number of beds in hospitals and dispensaries will be increased by about 9,000 during the Plan period ; but the improvement in the quality of medical services from increased numbers of fully-trained doctors, better buildings, and more equipment will probably prove at least as great a gain to the health services as the increase in the number of beds.

199. There will be an extension of school health services, and health education work on schools and communities will be assisted. Research work, particularly on nutrition and in vital statistics, will be increased.

200. We recommend the convening of a health conference to advise the Government and the country on a number of questions, including the role the Government should play in the provision of health services, the place that should be given to the indigenous systems of medicine, and the desirability of retaining the institution of medical schools.

201. Development expenditure in the various fields of health during the Plan period is estimated as shown in Table 19.

### TABLE 19

*Public expenditure on health*, 1955—60

(Figures can be read in millions by removing decimals)

| | (Crore rupees) |
|---|---|
| Tuberculosis control ... ... ... ... ... ... ... ... | 3·0 |
| Malaria control ... ... ... ... ... ... ... ... ... | 5·3 |
| Infectious disease hospitals ... ... ... ... ... ... ... | 0·4 |
| Maternal and child health ... ... ... ... ... ... ... ... | 1·2 |
| Medical and technical education ... ... ... ... ... ... ... | 8·8 |
| Hospitals and dispensaries ... ... ... ... ... ... ... | 9·4 |
| School health, education, nutrition, research and statistics ... ... ... ... | 0·6 |
| Total ... | 28·7 |

## SOCIAL WELFARE

202. Modern social welfare work, like modern medicine, has two aspects—preventive and curative. Preventive social welfare is designed to foresee the problems which will arise from social changes of the type that are going on so rapidly in the country, with the shift to urban living and to industrial employment, the change from the extended family to the small family, the change from subsistence agriculture to a money economy, and the rise in population, education, mobility, and income. If these and many other changes are foreseen, steps can be taken to prevent the squalor, misery, frustration, and crime which so often accompanied similar changes in other countries passing through the stage of rapid economic and social development. The curative aspect of social welfare deals with the public responsibility for the care of the destitute, the handicapped, orphaned and neglected children, women deprived of support, and other people unable to meet with their own resources the problems that confront them. Preventive social welfare is less spectacular than the institutional treatment of special cases, but it is much more important, especially in a country where resources are so limited.

203. Social welfare work in the modern sense is very new in this country. Training and research are therefore of first importance to provide a nucleus of professionally-trained people, and the basic knowledge they need for successful work. It is also highly important to start pilot projects of various types which can later be expanded, and to establish suitable organisations for executing government programmes, and for co-ordinating public and private effort.

204. The extent of the programme in this first five-year Plan period hinges on the number of persons who can be trained. Professionally-trained people are not the only group needed to carry on social welfare work ; experienced amateurs and private volunteers are needed in large numbers, but their efforts must be organised around a core of trained people. The Plan provides for training about 500 workers during the five-year period, through the social welfare courses at the Universities of Lahore and Dacca, and through special short courses for people with some experience.

205. About half of these trained workers will be used in 70 urban community development projects (rural community development being in the main the province of the Village AID programme). As in the case of Village AID, the purpose of these urban community development projects will be to help the people in neighbourhood units to co-operate in solving their own problems, with assistance from the appropriate government agencies. Problems of education, sanitation and health, cottage industries, and housing can all be successfully attacked through the co-operative efforts of the people themselves, aided by the Government. Special emphasis will be given to establishing such projects in areas with heavy concentrations of refugees.

206. Most of the other trained social workers will be employed in research, and in various special programmes for the handicapped, for destitute children, for the rehabilitation of delinquents and of other special groups, and in co-operative arrangements with other agencies in such fields as medical social work, recreation, and education.

207. In order to provide for effective planning and co-ordination of these various programmes, Social Welfare Boards will be established in the Central and Provincial Governments, which will make grants to official and voluntary organisations. These Boards will include representatives of government ministries dealing with social services, and of private social welfare organisations.

208. The social welfare programme during this five-year period must be regarded as a pioneering effort ; it cannot be large, but it can be of very far-reaching importance if a sound foundation is laid for expansion in later periods. Development expenditure during the Plan period is estimated as shown in Table 20.

### TABLE 20

*Public expenditure on social welfare*, 1955-56

(Figures can be read in thousands by removing decimals)

| | (Lakh rupees) |
|---|---|
| Training ... ... ... ... ... ... ... ... ... | 30·00 |
| Research ... ... ... ... ... ... ... ... ... | 10·00 |
| Administration ... ... ... ... ... ... ... ... ... | 30·00 |
| Urban community development projects ... ... ... ... ... ... | 125·00 |
| Remedial establishments ... ... ... ... ... ... ... ... | 130·00 |
| Total ... | 330·00 |

## STATISTIC

209. Substantial progress has been made in the collection, compilation and publication of statistics since partition. But many important series are lacking while most of those that are available are seriously deficient. The necessary statistical service must be organised and developed as rapidly as possible. Statistics are a basic requirement for the formulation of social and economic policies, for the preparation of national development programmes, for private investment decisions and for an appraisal of the results achieved.

210. The Central Statistical Office should be strengthened and the scope of its work should be enlarged. A National Sample Survey Organisation should be created as a part of the C. S. O. to fill the major gaps in the national statistical system. The responsibility for census operations should be transferred to the C. S. O. A programme for a complete agriculture and livestock census should be put into effect. A statistical organisation exists in East Pakistan, and one should be established in West Pakistan also. We have provided Rs. 3 million (30 lakh) in the Plan for the creation of a National Sample Survey Organisation, the establishment of a statistical organisation for West Pakistan, and the expansion of statistical services in general. Provision for an agriculture and livestock census has been included in the agriculture programme.

## INSURANCE

211. In the field of insurance, we believe that Pakistani companies need to be strengthened to take on an increasing share of the insurance business, among other reasons, in order to save foreign exchange. The strengthening of life insurance as a means for collecting and channelling small savings is particularly important, A sum of Rs. 2 million (20 lakh) has been provided in the Plan for establishing a public corporation to promote life insurance.

# PART II

# ECONOMIC DEVELOPMENT AND PLANNING

## Chapter 3

## THE PROBLEM OF ECONOMIC DEVELOPMENT

## INTRODUCTORY

1. Part I has outlined some of the basic economic problems facing the country, has sketched the principal lines of development since partition and has given an outline of the Plan. We now consider the problem of development with special reference to the conditions of economic growth and the role of the Plan in promoting development.

### Origin and general magnitude of the problem

2. The economic history of the developed countries of West Europe and North America illustrates the origin and the general dimensions of the problem of economic development. Its origin lies in the industrial revolution which began towards the end of the 18th century and which placed steam and electric power at the service of man. Led and accompanied by scientific and technological advances, the industrial revolution has transformed the entire technique of production during the last two centuries. It has enabled man to equip himself for a higher standard of living as well as for destruction with deadly weapons. The industrial revolution has been a complete and all-embracing revolution—economic, technological, military, social, political and cultural.

3. The nations benefiting from the revolution acquired political and commercial supremacy over the countries still using primitive and outmoded techniques. This supremacy too frequently led to feelings of mental and intellectual subordination among backward nations, to contempt for their own achievements and values, and lack of confidence in their creative faculties. It is now widely recognised that these attitudes are completely unwarranted. No country in the world has developed more rapidly than Japan, which in less than one hundred years changed from a backward, feudal nation to a modern, highly-productive country.

4. The problem of under-developed countries today is one of achieving in a short space of time and in some appreciable measure the revolution which the developed countries have undergone during the last 200 years. But the problem is even more than this. The aim is to achieve these revolutionary changes without bearing the often very high social costs—exploitation, overcrowding, misery, slums, etc.—which accompanied economic progress in most cases.

5. These are formidable goals. They become all the more formidable when it is remembered that many of the developed countries were aided by favourable circumstances. Many of them had very large natural resources—lands, minerals, forests—waiting to be tapped. Frequently the ratio of population to resources was low, and in such circumstances the growth of population, which has been very large since the industrial revolution, was a source of economic strength enabling them to exploit their physical resources more effectively. Some of them had colonies as sources of food and raw materials, and as markets for their growing industries.

6. The major advantage of the under-developed countries at present is that they are able to benefit from the vast accumulated experience in science, and technology, in planning and organisation, and in social services and accomplishments.

7. The problem, though of staggering proportions, is being tackled successfully by many countries. Japan has been mentioned. There is also the example of Russia, though her methods are not consistent with the ideology and spiritual values of this country. There

are the examples of Turkey, India, Mexico, and many other countries which are exerting themselves to transform their economies so as to achieve high standards of living and to acquire the position in the world to which they are entitled by virtue of their history, population and resources. The technique for tackling the problem in all cases is one of planning for orderly and sustained development.

8. Planning is a part of the process of life. All public and private activities, whether large or small, have to be planned. It is especially necessary that the development of a country's economy should be planned in order to set clear and practical targets in the framework provided by social and economic goals. The smaller the resources and the more formidable and complex the problems, the greater the need for planning in order to achieve maximum results in the shortest time.

9. The tasks of converting a stagnant economy into a dynamic one, of revolutionising the techniques, and of providing the equipment for the exploitation of resources to achieve high standards of living need a well-planned effort extending over many five-year periods. Some idea of the magnitude of the problems facing this country can be formed from the fact that the doubling of *per capita* income—which is less than half of some other under-developed countries—even in a quarter of a century would be difficult.

**Meaning and importance of economic development**

10. Pakistan has an under-developed economy. This implies that the standard of living of the people is lower than that of people in many other countries. They have less food and clothing, poorer medical care, less adequate housing and education, less opportunity for recreation and cultural enjoyment than people in many other countries. It means also that the country has the capacity for development ; that the standard of living can be much higher than it is now. The resources that are available, or that can be made available, if used wisely and in accordance with the best of modern knowledge, can yield far greater returns in human welfare than they now do.

11. The country does not produce enough food to provide more than a bare subsistence diet for the people, nor enough clothing for normal warmth and decency for everyone, nor enough exportable goods to pay for the import of what is not produced at home. The basic central purpose of development is to increase the production of goods and services which constitute the national income.

## THE SIZE OF THE PROGRAMME

12. There are many and pressing claims on the national income, and unless a satisfactory rate of economic growth is achieved it will be impossible to satisfy them. If national income is increasing, a more equitable distribution can be accomplished and political instability can be kept to a minimum. In a growing economy the resolution of conflicts of interest becomes easier than in a stagnant or declining economy. An increase in economic productivity is not an end in itself ; it is only a means. But it is a means to very important ends.

13. The goal is not only to increase the national income but to increase it faster than the population. This is a difficult task. We estimate from available data that the population is growing at a rate of about 1.4 per cent a year. This means that every year over one million more people have to be fed and clothed and provided with schooling and health facilities. If this rate of increase continued the population would double in about fifty years, and the national production and income would have to double in fifty years merely to maintain the present standard of living. We do not suggest that this rate of population

increase will in fact continue for fifty years : this is just an assumption to illustrate the problem. The rate of population growth may become even more rapid as improvements in public health reduce the death rate from disease. Many countries face the problem of population growth, and some of them have deliberately chosen to follow policies designed to limit its rate. If these policies produce significant results, this country will have seriously to consider how far they can be employed here.

14. In all probability there has been some increase in *per capita* income in recent years. This is no small achievement, considering the dislocations of partition, the problems of setting up a new Central Government and one Provincial Government, the resettlement of millions of refugees, and the scarcity of resources for development. The Government and the people are determined to accelerate the rate of increase in *per capita* income and to achieve better and better results in the future.

15. Finally, the process of economic development requires a set of institutions, attitudes and incentives that will assure continuity of growth. High annual rates of savings, a continuous improvement in methods of production, a steady provision of managerial, professional and technical skill, and a streamlined administrative organisation make economic growth a *quasi*-automatic process. In general, countries where this condition is fulfilled have developed a set of attitudes and institutions which place a high value on economic progress, give the individual considerable scope to develop and use his full capacities, and achieve a reasonable relationship between a man's contribution and his rewards. This country must aim at the same goals with an accelerated pace to make up as much as possible for lost time.

### Opportunities for economic development

16. Given the existing natural and human resources the extent and qualities of arable land ; the water, forest, mineral, and marine resources ; the numbers and skills of the labour force ; the available capital equipment ; and above all the united will of the people—the two principal ways of increasing productivity are (a) better use of existing resources and (b) expansion of resources through savings and capital investment.

17. To the extent that idle or partially utilised resources can be put to work by better organisation and superior techniques, a large increase is possible in output per unit of capital employed. The capital requirements, on the other hand, for bringing new land into use through irrigation works or for the creation of new industries are apt to be large per unit of increased output. Since capital is scarce by reason of the low rate of savings and investment, every effort must be made to employ it in those uses in which its effect on production is the greatest.

18. Past development programmes have perhaps tended to give too much attention to large capital-intensive schemes designed to bring new resources into use, frequently many years hence, and too little attention to increasing production through better use of existing resources. Yet the possibilities of increasing production by better use of what exists are very real. They are to be found primarily in the unemployed and under-employed labour force, in the low productivity of lands capable of much higher yields, and in manufacturing establishments working at less than full capacity for lack of power or raw materials.

19. The most conspicuous of the under-utilised resources is the large number of workers unemployed or employed less than full time. All these people are not idle by choice but by necessity—they cannot find enough productive work to keep them busy ; if a small amount of capital can be used to employ a large number of people, the returns can be very large. These workers are almost entirely unskilled and live for the most part in rural areas.

A few may be drawn into organised training programmes of one kind or another, or absorbed into industrial employment in the factories, but this requires a heavy outlay of capital and will not absorb much labour now unemployed. For a long time to come, most of these workers will continue to be largely unskilled and to live in villages ; the problem is to enable them to work there.

20. In recent years much has been learned about how to bring the energies of these people into play to increase welfare. The best solution found so far is to give them jobs which add to the productive assets of their villages. These unskilled workers can, with a small amount of capital equipment and materials, and with adequate guidance, build roads and embankments, construct water supply and drainage systems, build schools and other community buildings, plant trees, and do many other things of substantial value. Many of these activities are a type of capital formation ; the results in the years ahead may be higher production—as for example, where embankments keep flood waters off fertile lands—or higher consumption—as where a pure water supply reduces disease and increases personal well-being. In either case, idle human energy will have been invested at little cost to yield substantial addition to the national income.

21. The possibilities of expanding the productivity of the employed labour force with little capital investment through adequate health measures are also large. The loss of working time and output because of disease and ill health is high. Even those at work frequently produce less than could be expected from able-bodied men because of the debilitating effect of chronic disorders. Consequently, an opportunity exists through an expanded health programme, particularly a programme of preventive measures, of increasing the productivity of the labour force with a very small expenditure per unit of increased output.

22. A second great under-utilised resoure is agricultural land. Much of the land yields a fraction of what it could produce with more water, better seeds, better grading, more tools and improved techniques. The increased yield per rupee of properly-directed investment on lands already in cultivation is likely to be much greater than the increased yield per rupee of investment required to bring new lands into cultivation. This is not to say that large irrigation projects designed to open up new areas are not worthwhile ; the country needs new arable land and must take all feasible measures to obtain it. But it is necessary to increase the productivity of land already under cultivation, and this can be done with relatively small expenditures of scarce capital resources. The problem here is largely one of organisation.

23. What has been said of land is also true of other natural resources. The off-shore fisheries of the Arabian Sea and the Bay of Bengal can add to export earnings and yield sizeable additions to the national food supply by relatively small investments in better boats, better fishing gear, and better marketing facilities. This is also mainly a problem of organisation. The forests of the Chittagong Hills and the Sunderbans are waiting to be tapped for the wood so badly needed in the country.

24. A third under-utilised resource exists in the industrial plant operating at less than full capacity, largely because of the inevitable unevenness of our industrial development programme. Some facilities are completed before the power and raw material supplies on which they have to depend are fully available ; some facilities are not utilised with full effectiveness owing to the lack of repair parts ; many plants are not operating on an efficient scale for these reasons. The removal of bottlenecks to capacity operation provides opportunities for investment which must inevitably yield high returns.

25. We have emphasised that the effective use of unemployed or partially idle resources frequently provides the opportunity for a large increase in national output per unit of investment and that this, in a country acutely short of capital, is a highly important consideration. This does not mean that investment in capital-intensive economic activities, where the capital requirement per rupee of value added is high, should be neglected. In fact, more than half of the public investment proposed in the Plan is in power and irrigation, railways and large-scale industry, which by any test are capital-intensive activities. What it does mean is that opportunities for utilising under-employed resources should be explored and exploited to the full. The factor limiting the use of these resources to the full will usually be found not to be capital but administration and organisation. The country must and will have a developing industry and new lands to cultivate. At the same time it is necessary to exploit the many opportunities of increasing our national income by putting the existing resources more effectively to work.

## Obstacles to economic development

26. There are no absolute limitations on economic development, but there are obstacles that must be clearly understood in order to be overcome. The major obstacles lie in shortage of factors essential to the process of development. The country has a plenitude of unskilled labour, of land capable of higher yields, and even of some industrial facilities operating at less than full capacity. In order to put these assets effectively to work and to create the additional assets needed for a balanced and growing economy it is necessary to have more resources for development, more foreign exchange, a broad dissemination of technical knowledge, a larger supply of trained administrators and better administrative procedures and techniques. The lack of adequate supplies of these essential elements will limit the rate of economic development over the next few years. These shortages represent the obstacles which must be overcome.

## Shortage of resources

27. The first, though not necessarily the most serious, obstacle arises from a shortage of development funds. As the term is here used, development is not the same thing as formation of physical capital. In addition to increases in physical structures and equipment and to improvements in the national resource base which, are the normal objects of investment, we have treated as development increases in expenditure on research and surveys, social and extension services, and Village AID. The justification for this is, first, that it is required by our Terms of Reference and, second, that the development and productivity of country's resources is closely dependent on the improvement and expansion of these activities and services. The expenditure figures represent gross investments and make no allowance for depreciation of the existing capital stock. There are no reliable figures on capital depreciation, but we know that the major part of the proposed investments in the railway programme is intended for renewals and replacements, and other capital plant and equipment also depreciates. Our estimates of development expenditure exclude capital investment which does not originate in the monetary sector of the economy : additions to capital resulting from improvements to agricultural land and structures, and additions to housing facilities and the like, arising from the application of labour to local materials and involving little or no monetary expenditures. At a guess, this type of expenditure amounts to perhaps 250—350 million rupees a year.

28. The Plan calls for a development expenditure of the order of Rs.11,600 million of which Rs. 8,000 million represents investment decisions by Government and Rs. 3,600 million represents investment decisions by private individuals. Development activities of a value of Rs. 11,600 million represents 10 per cent of the estimated gross national product during the Plan period.

29. Our own gross internal saving, public and private, during the Plan period might be of the order of 6 to 7 per cent. of the expected national income ; we hope that external finances will be available in sufficient amount to provide the remaining resources required for the Plan. This ratio of savings to expected income is low compared with what many economically-developed countries have achieved in the full flush of their development. But it represents a substantial increase over this country's rate of saving hitherto : this discrepancy between current performance and what should be done is one measure of the magnitude of the task before the country. To increase the current rate of savings, it is necessary to devise ways to capture for productive investment a substantial share of the increase in national income resulting from economic development. Allowance has been made for this in deciding the size of the Plan : it means that the increase in levels of consumption in the Plan period will be modest.

30. It is sometimes said that in under-developed countries it is impossible to attain high rates of savings and investment because of the existence of a " vicious circle of poverty". People are poor, therefore their savings are low ; consequently the rate of investment remains low, and people continue to be poor. In addition to being defeatist, the espousal of such a view is totally mistaken. All economically developed countries have passed through a stage of poverty. This so-called " vicious circle " can be broken through at many points. Co-operative effort in the villages can create development resources without the reduction of current standards of living ; better agricultural techniques can increase yields without massive injections of capital ; improved tax administration can yield additional funds for development ; improvement and enlargement of banking and insurance facilities can stimulate the flow of savings ; foreign assistance can markedly assist the development process.

31. Increasing the ratio of savings to national income is, however, a slow process : it can be accelerated only if a substantial part of the addition to national income resulting from the better use of existing resources is captured for development. This does not mean little or no improvement in standards of living. But it does mean foregoing, now the full benefits of increased productivity, in the interest of later gains. There is substantial evidence that most countries that have achieved a continuous process of economic growth have passed through a period during which a retarded rise in standards of living was necessary to rapid increases in capital formation.

32. During the period of the Plan then and for some years beyond it is clear that shortage of capital will be one of the factors limiting the rate of economic growth. If this shortage is to be regarded not as a permanent limitation but merely as an obstacle to be overcome, two things are necessary. First, every opportunity must be used to increase the rate of public and private savings ; the measures to accomplish this end judged to be practicable during the Plan period are discussed in Chapters 8 and 9. Second, it is necessary, in view of the current shortage of development resources, to ensure that they are so distributed among various possible uses as to maximise their contribution to the national income. Some of the technical problems involved in assuring this distribution are discussed in the next chapter.

**Shortage of foreign exchange**

33. A second shortage, which, in certain areas of development, will be even more serious than lack of capital resources generally, is the scarcity of foreign exchange required to pay for imports of equipment and materials necessary for development as well as to support current economic activities. The fact of scarcity has been manifest in strict import limitations, high tariffs, and exchange controls. Even the severe levels of austerity enforced in the import of consumer goods has hitherto barely sufficed to provide the minimum

foreign exchange needed for development. Meanwhile, established enterprises have often found it impossible to maintain the scale of their operations because of shortage of materials or spare parts, obtainable only from abroad.

34. The causes of this shortage of foreign exchange are not far to seek. First, unless the nation is willing to continue indefinitely as a low-income, overwhelmingly agrarian economy with its people ill-fed and ill-clothed, it must accelerate its economic development and industrialisation. But partition left very few of the facilities required to produce the machines, the plant and the materials required for development and, particularly, for industrialisation. These things must be imported from abroad along with essential consumer goods, fuels and materials necessary to keep existing plant in operation.

35. Second, the export of raw materials to earn foreign currencies, on which so many under-developed countries have relied to finance their development programmes, presents exceptional difficulties in present circumstances. The adverse movements in the terms of trade have been a very important factor in the shortage of foreign exchange. The country at present depends for nearly four-fifths of its foreign exchange earnings on exports of jute and cotton—commodities which face severe competition in world markets from other sources of supply and from substitutes. The invisible earnings from other exports and from services rendered to foreigners are individually small, though the proceeds from certain of these exports may be expected to increase.

36. Third, the flow of foreign private investment, which in the nineteenth century many such a large contribution to the economic development of the United States, Canada and many other countries, has, except in exploiting commodities such as petroleum and other internationally traded minerals, greatly diminished. Its place has been taken in part by loans from governments and international institutions and, to a larger extent, in recent years, by grants-in-aid for economic development. A decline of foreign governmental loans for grants-in-aid would be unlikely, in present circumstances, to be offset by a renewed flow of private international lending.

37. The emergence of foreign exchange deficits is not an unusual phenomenon for a country engaged on economic development. A country with a static agricultural economy has simple needs for consumer goods, which are easily satisfied from its internal resources. Its needs for the import of capital goods are limited, but begin to rise steeply under the impact of a social and economic policy based on development.

38. This sombre picture is painted not to state a limitation to economic development but to outline a problem. But it must be emphasised that this is one of the most serious problems facing the country and that every effort must be made to solve it. The principal courses of action that can lead to a solution are obvious, and indeed substantial progress has been made since partition towards a solution. The prices of the principal exports must remain competitive in world markets. The range of export goods and services must be widened, to reduce the present excessive dependence on jute and cotton. Imports must be replaced by domestic production wherever an appreciable economy of foreign exchange could be achieved without involving inordinately high domestic costs. Foreign investors must be encouraged to undertake part of the development programme, releasing the country's supplies of foreign exchange for other uses.

39. It must be recognised, however, that the establishment of a level of foreign earnings sufficient to finance the import requirement of an expanding development programme without severe control of imports for other purposes is a slow process. The scarcity of foreign exchange will certainly last through the period of the Plan and longer, though the improvement will be constant and decisive. During this period the allocation of available supplies of foreign currencies to those uses that will make the largest possible contribution to the national

income and its growth is a matter of prime importance. It involves a problem that overlaps with, but is distinguishable from, the problem of allocating domestic financial resources to their most productive uses. If there were no import restrictions and the rupee were freely convertible into other currencies, the two problems would be identical, and resources would be reasonably distributed among different uses without regard to whether these uses required domestic or foreign goods or services. Since this is not so, an additional element is added to planning calculations, the technical aspects of which are considered in the next chapter.

### Shortage of technical knowledge

40. Increases in productivity are mainly the result of added amounts of capital and the use of superior techniques. Frequently it is impossible to adopt superior techniques without some investment of new resources. There are, however, many situations in which it is possible greatly to increase output by using improved methods of production that require very little capital investment. The introduction, for example, of a superior type of seed may, over time, double the yield per acre at very small cost.

41. Under-developed countries have at least one great advantage over the economically advanced countries when the latter were at a similar stage of development. There is today a vast store of accumulated technical knowledge in the world on such subjects as: how to grow more and better food per acre ; how to produce better and cheaper clothing, houses, vehicles and a thousand other products ; how to transport things faster and more safely ; how to harness rivers to gain the maximum benefits at the least cost ; how to prevent and cure diseases ; how in countless ways to meet human needs more effectively and at lower cost. This knowledge exists : the methods have been discovered and invented, tried in practice, and applied on a large scale.

42. The existence of a large stock of technical knowledge is not, it is true, an unmitigated advantage. These techniques have for the most part been developed in technically advanced countries where capital is relatively plentiful and labour frequently scarce. There are, moreover, many other differences among countries in qualities and relative quantities of natural resources, and in customs, incentives, and skills, so that techniques applied elsewhere may be completely unsuitable to conditions in this country. Pakistan should borrow ideas when it can, and adapt where it must. At the same time research should be started wherever possible to devise technical methods better adapted to the requirements and conditions of the country.

43. The economic applicability of foreign techniques exhibits a wide range of differences among the various investment areas. In the erection of a paper mill at Chandragona there is no reason why the best process available as judged by available standards abroad should not be introduced in this country. Other methods of making paper, better adapted to a relative scarcity of capital and abundance of unskilled labour, are no doubt conceivable, but to devise them either through innovation or adaptation is apt to be a very slow and costly process. On the other hand, to attempt to apply in Pakistan the same combination of seed, fertiliser, tools and methods of cultivation as have yielded excellent results in producing wheat in Western Canda would obviously be unreasonable. There is something to learn from the experience of Canada, but Canadian methods are unlikely to be applicable in Pakistan conditions without substantial modification. It seems probable that most areas of investment fall somewhere between the example of paper making and the example of raising wheat.

44. Where techniques of the economically-advanced countries can be employed intact in this country, the major limitations on development may be the shortages of capital resources and of foreign exchange. Where it is necessary to adapt what can be learnt from

abroad, and to devise techniques suitable for this country, progress will be checked also by the lack of scientists and engineers, of institutions devoted to research and development, and of the trained personnel required to disseminate the knowledge of new techniques to those who could use them.

45. To remedy these deficiencies takes time, money and organisation. An investment in scientific and technical training and in applied research will ultimately yield a very large increase in national income per rupee invested. Applied research is of very great importance in industry, transport, construction, education, health and every other field of development : all of which offer numerous urgent problems awaiting applied research. What are the most efficient and economical uses for Sui gas, and what are the comparative costs and returns of using the gas or domestic coal for various purposes ? How can the production of glass and paper containers for food stuffs displace the use of imported materials ? What is the most economical way to construct and surface roads in Bengal, in the Punjab, in Baluchistan ? What are the best designs, materials and methods for people to use in constructing better housing for themselves in the different parts of the country ? What is the best way to provide and maintain pure water supplies in the villages of East and West Pakistan ? What parts of the country are best suited to the production of sugar-cane ?

46. The list could be extended indefinitely. Clearly a steadily-enlarged national programme of research will be needed for many years to solve problems which can already be identified quite apart from those which will arise in future years. Much of the necessary research will have to be done by specially organised and equipped institutions—agricultural, industrial and educational research institutes, and many others. But research should not be confined to institutions. In the development of other countries, much has been accomplished by the research efforts of private companies, of teachers and graduate students in universities, of government workers, of individual workmen in factories and shops who tinker with methods of producing better goods at lower costs. To encourage and support applied research in all fields must be a major element in any development programme for this country.

47. When the best technical knowledge has been acquired and adapted to the conditions of the country, the hardest step is still to come. That is the task of spreading the knowledge to places where it is needed, of making it available to the millions of people who should use it in their daily lives ; this has always been the most difficult step in every country.

48. The educational system has a very important role to play in this respect. But the schools can meet only part of the problem. In agriculture, the most effective device found in other countries is the extension service—government employees whose duty it is to carry to the farmer the information he needs to improve his methods and his results. This country has had agricultural extension services for some years ; they need very substantial expansion and improvement, however, to enable them to perform their functions effectively. The Village AID Programme in one sense is a specially-designed extension service and the most promising agency yet discovered for the dissemination of technical knowledge in the fields of agriculture, animal husbandry, health and sanitation and others. In industry, the necessary institutional arrangements have not yet been made. In health, housing, transport, and in many other fields this problem needs to be investigated and appropriate institutional solutions need to be devised. The problem is of major significance to the development programme and will require steady, persistent efforts for its solution.

**Management and organisation**

49. Increasing productivity is the result not merely of expanding the available supplies of capital resources, foreign exchange, and technically-trained personnel. These and other resources must be brought together into effectively functioning units: this requires

organisation and management. The supply of managerial and organising talent available for economic development in Pakistan is very short. At partition there were very few manufacturing enterprises of any size in the country, and there were very few Muslims in the Civil Services of undivided India. In general the Muslims had a very small share in administration and industry ; the people of East Bengal, Sind and Baluchistan had practically none. Despite these difficulties, it has proved possible to organise and staff new Central and Provincial Governments, to supply the deficiencies created by the exodus of people with special kinds of business experience, and to create a rapidly growing industry. Men have come from all over India with skill, knowledge and experience and there has been considerable upgrading in the Civil Services, transfer of talent into new lines of activity, and import of technical and managerial personnel from abroad.

50. Nevertheless, as the development programme expands, the country will still face a serious shortage of competent managerial and technical personnel. In many important areas this, rather than a shortage of capital resources or foreign exchange, will limit the rate of development. Taken as a whole, administrative deficiencies, procedures and attitudes will in our opinion offer the most serious obstacles in the way of accelerated development. Delays in taking decisions, unwillingness to decentralise powers, inability to prepare proposals properly, and lack of sufficient encouragement to promising men are some of the impediments to be faced. Moreover, there are many opportunities for expanding output and providing people with necessary services that do not require large quantities of capital and foreign exchange. What is needed is initiative, organisation and skill in administration. People in the villages, if properly helped and guided, and with a minimum of capital assistance can supply many of their local needs themselves—schools, houses, roads, drainage and sewerage systems, and better water supplies. In urban areas many families will be able to construct their own houses if given some help with sites, materials and direction. Unemployed and under-employed labour can be put to work on irrigation projects, afforestation and other public works, with little drain on scarce capital and foreign exchange resources, if projects are properly organised and administered.

51. Because the direction of more than two-thirds of the development programme during the Plan period will be in the hands of the government, an especially heavy burden is laid upon the public services. It is a burden that neither the Centre nor the Provincial Governments are at present particularly well equipped to bear. In addition to facing the shortage, inherited from partition, of experienced civil servants, the Government, in promoting economic development throughout the economy, is assuming a series of new tasks lying somewhat outside the traditional role of government in this sub-continent. It is inevitable, therefore, that effective initiation and management of development enterprises will require some reorganisation and strengthening of the administrative services. This problem is discussed in the Chapter on Public Administration.

## RATE OF DEVELOPMENT

52. With some variation between East and West Pakistan there are plentiful supplies of certain resources—unemployed and under-employed labour, large acreages of potentially productive land, capital facilities not fully utilised, undeveloped marine, forest and mineral resources, and others—which, if effectively put to work could greatly increase the national income and standard of living. East Pakistan is short of land, but can make more productive use of what is available. West Pakistan is short of water, but present supplies can be increased by storage reservoirs and other means. To put these resources effectively to work and to expand the productive equipment as a whole, it is necessary to overcome certain obstacles, in particular, the existing shortages of capital resources, foreign exchange,

relevant technical knowledge, and management and administrative skills. It must be re-emphasised that these shortages represent problems to be solved, similar to those encountered by other developing countries. There are problems which the economically advanced countries of the world have, for the most part, already solved. Nevertheless, because the solution will take time, existing shortages will limit the rate of growth during the Plan period, and well beyond. How fast, under these circumstances, can the national income be expected to grow ?

53. Problems of estimation of this sort are sometimes handled by applying what are known as incremental capital-output ratios, that is, ratios between net new investment and increases in national income. If the incremental capital output ratio were 3 it would mean that every 3 rupees of investment would yield an increase of one rupee in national income. If the incremental capital-output ratio in Pakistan turned out to be 3 to 1, the net new investment in the development programme we propose might be expected to produce an increase in national income of about 3000 million rupees by the end of the Plan period. This would represent an addition of about 15 per cent to the present national income. We do not know what the incremental capital-output ratio in Pakistan is, nor is it useful to attempt to apply ratios calculated from the very different experience of other countries. The ratios, moreover, that have been calculated show a wide range of variation, which is what we should, *a priori*, be led to expect. In recent years several undeveloped countries, including India, appear to have realised a more favourable ratio than 3, but the experience is yet very limited.

54. The application of incremental capital-output ratios to an estimation of the rate of growth of national income is equivalent to assuming that net investment is the principal determinant of national income, in the sense that all other conditions of economic growth adapt themselves in *quasi*-automatic fashion to the rate of capital formation. This is not only far from the truth but carries with it the implication that the only serious problem to be solved is the shortage of capital. In fact, in certain very important areas of the development programme, lack of capital is not the limiting factor : there is, for instance, the opportunity of greatly increasing the yields on agricultural land without large injections of capital.

55. A direct estimate, sector by sector, of the additions to national income to be expected from the development programme also yields a figure of about 20 per cent. These estimates can of course only be approximate. Moreover, the important point is that the growth of the national income can be less or greater than 20 per cent during the Plan period depending on how vigorously and successfully the nation tackles the problems of improving organisation and administration, training the citizens for a more effective role in production, and saving and investing more resources in development, taking the many other actions that will contribute to the process of development.

56. If, in fact, the national income is increased by something like 20 per cent during the Plan period, this will represent a very sizeable achievement, give a promise of greater possibilities, and provide a good foundation for the future. It will imply a rate of increase of national income of slightly less than 4 per cent per annum and a rate of increase of *per capita* income of slightly less than 2·4 per cent annually. This compares favourably with rates of increase in countries for which reliable statistics are available over a period long enough to make such calculations useful. The following table presents rates of growth in total and *per capita* income in four countries for which such information is available for 60 years or more. In only one country, the United States, has the rate of growth per decade averaged more than 30 per cent, and in only one country, Sweden, has the rate of growth in *per capita* income averaged more than 20 per cent.

TABLE 1

*Growth of national income and income per head in certain countries*

| Country | Initial period | Terminal period | Number of decades | Growth of National income | Growth of popu-lation | Growth of *per capita* income |
|---|---|---|---|---|---|---|
| United Kingdom ... ... | 1860—69 | 1920—29 | 6 | 20·7 | 9 | 10·7 |
| France ... ... | 1840—49 | 1920—38 | 8·5 | 14·5 | 1·7 | 12·6 |
| Sweden ... ... | 1861—80 | 1921—44 | 6·1 | 29·4 | 6·5 | 21·6 |
| United States ... ... | 1869—88 | 1929—48 | 6 | 37·7 | 18 | 16 |

(*Source* : Simon Kuznets : " Population, Income and Capital " in *Economic Progress*, Papers and Proceedings of a Round Table Conference held by the International Economic Association, Santa Margherita, Italy, 1953)

57. Other countries, it is true, have shown higher growth rates than those shown in Table 1. But for some the period covered by the statistics is too short to establish a trend ; for some the reliability of the statistics is subject to serious question ; for others the presence of a totalitarian government, capable of dictatorially reducing standards of living, has permitted investment of a much higher percentage of national income than would be possible in a free society. Professor Kuznets, who is a leading authority on national income statistics observes : " Our long records of national income are with some exceptions (Italy, Japan) for countries at the top of the income pyramid. The rates of growth in *per capita* income are found to vary from about 10 per cent to over 20 per cent per decade. These rates are extremely high ; an increase of 10 per cent per decade means a rise over a century to more than two and one half times the initial value ; an increase of 20 per cent means a rise over a century to more than six times the initial value ".

(Simon Kuznets : " Towards a theory of Economic Growth " from *National policy for Economic Welfare at Home and abroad.* Columbia University, Bicentennial series, 1955)

58. Against these considerations it is worth remembering that the planned approach to the problem of development has a relatively short history. It is only in recent years that democratic countries have begun to guide, control and accelerate the growth of their economies under carefully prepared plans. India expects to have achieved an increase of a little more than 18 per cent in her first five-year plan, and is basing the second five-year plan on a 25 per cent increase. We assume that her second plan targets derive their validity from the experience gained in the first. The experience of some Latin American countries points to an incremental capital out-put ratio of 2 : 1. There is every reason to expect that results in this country will be better than those of countries which under largely uncontrolled atomistic enterprise followed hit-and-miss methods without any conscious national targets in view. Frequently they had to retract in order to overcome the effects of failures, under-production, or over-production in particular sectors. Experience alone will show what rate of growth Pakistan will be able to attain. If in addition to a plan in which targets are clearly specified and the necessary resources foreseen, preparations can also be made for institutions, policies, and incentives capable of ensuring a continuously high rate of

capital formation, and for developing organisations and technical and managerial skills capable of putting basic resources to effective use, the rates of economic development can be greatly accelerated.

59. If the national income rises by 15 per cent during the Plan period and continues to rise at that rate thereafter, it will double in about 19 years. On the same assumption, and also assuming the present rate of population growth, the *per capita* income will double in approximately 30 years. If the Plan is applied vigorously with a united will and purpose and measures are taken to create favourable conditions, there are good reasons to expect that the increase in the national income will be greater than in countries with an unplanned approach to economic development. What will then happen to *per capita* income depends on the rate of population growth. But the outcome is largely within the country's own control. How fast Pakistan develops hinges on the zeal and intelligence applied in planning and executing the programmes, and the spirit of the people in striving for greater prosperity and welfare.

## CHAPTER 4

# PLANNING THE DEVELOPMENT PROGRAMME

1. In this chapter we consider the scope of the development programme, its magnitude and the allocation of development resources among different uses.

**The scope and magnitude of the programme**

2. The purpose of the development programme is to achieve maximum progress towards agreed social and economic goals. The Plan lays heavy emphasis on the achievement of the greatest possible increase in national income, but this is not the sole objective. The Plan makes provision for specific increases of expenditure in such fields as health, education, housing and social welfare, which are justified primarily on grounds other than increasing the national income. We have been concerned with the improvement of foreign exchange position, and with assisting the less developed areas of our country to advance more rapidly. Finally, the Plan seeks to bring employment to people who are unemployed or under-employed at present. Development expenditure during 1955—60 must provide a foundation for rapid progress in the future : some of our proposals are designed primarily to contribute towards an increased national income in subsequent periods. The rate of progress towards the goals of the Plan will be determined by the resources available and the efficiency with which they are used.

3. To secure an efficient use of available resources, private and government decisions affecting production and investment must be co-ordinated to a much greater extent than may be needed in more advanced economies. The development programme starts from a position of acute deficiency in some sectors of the economy and severe limitations on investment resources, foreign exchange, and administrative and technical organisation. In order to secure maximum total growth, some sectors of the economy must be expanded much more rapidly than others. New techniques of production must be introduced, and new lines of industry and agriculture developed. These structural changes will not take place automatically. The profit motive will lead to adequate private initiative in some, but not all, of the sectors that should be developed. Government agencies must provide "overhead" facilities, such as power and transport, and must also undertake other lines of activity which, because of the prospect of only modest direct returns, are not likely to be adequately developed by private initiative. These requirements, together with the necessary expansion of health, education and other services, put a considerable strain on the resources available to the Government at various levels : the development Plan must assess the resources available to the Government, and the relative importance of various claims upon them.

4. The development Plan was formulated through a process of successive approximations by means of a comparison of resources available and claims upon these resources. Initially the resources, both financial and real, likely to be available during the Plan period were estimated on the basis of existing policies and programmes : that is, on the basis of what would be available if existing tax structures and rates were continued, borrowing kept within customary limits, past expenditure patterns maintained and so forth.

5. The foreign exchange estimates were based on projections of export earnings and import payments on the basis of past experience, corrected for changes which could be foreseen. The estimate of labour resources was made on the basis of existing numbers and skills, together with prospective new entrants, with allowances for casualties from retirement and death. Owing to the scantiness of data, this estimate was possible only in some categories, such as engineers, doctors, and teachers. Similarly, the initial estimates of

acreages and qualities of agricultural land assumed present availability, with an allowance for such changes as could be foreseen. The information available was generally meagre, and estimates were correspondingly rough. The proposals framed by the authorities responsible for detailed planning in the Federal and Provincial Governments were used after necessary scrutiny and discussion, to form an idea of the availability of physical and human resources for development. Estimates of resources available to private enterprise were made on the basis of past experience, the tasks proposed for the private sector, and discussions with leaders of business and industry.

6. The initial estimate of claims was likewise formulated from development commitments already made, from proposals submitted to the Planning Board, and from projections of demand by the private sectors and government departments. The development proposals included schemes formally or informally submitted by government, *quasi*-governmental or private agencies, or initiated by the Planning Board itself. These schemes were in various stages of preparation, ranging from fully engineered schemes to " good ideas ".

7. Setting the initial assessment of resources against the initial statement of requirements showed that resources were inadequate to meet all requirements, with a relatively greater shortage of some resources than of others, and overlapping and inconsistency among the claims. To overcome the shortage of resources, we studied possibilities of increasing the supply of the scarcer resources, of transferring demand from them to other and more plentiful resources, and of increasing the efficiency with which all resources are used. Estimates were made of increases in the public revenues available for development by improvements in tax administration, levying new or increasing existing taxes, by restricting public expenditure on subjects other than development, and by various other means. The claims on resources were next reviewed by arranging the various schemes proposed in order of their estimated productivity and importance, in an effort to compare the marginal schemes in different sectors and to eliminate overlapping and inconsistency.

8. From this point a series of further approximations led to a final set of proposals which matched the prospective supply of resources. The requirements of an acceptable plan are :

(*a*) that it should conform to the prescribed economic and social objectives,

(*b*) that it should be as large as the community with maximum effort can undertake,

(*c*) that it should be internally consistant in the sense that the claims on foreign exchange are no larger or smaller than the prospective supply of foreign exchange, the claims on skilled labour are no larger than the supplies, and in general, resources and claims on resources are in balance,

(*d*) that the use of resources proposed is efficient with respect to the ends in view, and

(*e*) that the Plan is administratively feasible.

Certain of these conditions are elaborated later in this Chapter (paras. 33 to 45). They can be fulfilled in varying degrees according to the data available and the co-operation achieved among the authorities concerned with the formulation and execution of programmes and policies.

9. The Plan takes account of all known resources, whether public or private, and considers all claims, whether public or private, against these resources. In the public sector, the Plan is implemented by direct decision by Government, at the Centre or at the Provincial or local levels. In the private sector, the use of resources is determined by private decisions, but within the context of public policies which largely determine their use. Private investment decisions, for example, frequently create requirements for scarce foreign exchange, and the importance of these requirements can only be judged in relation to other

claims on the available supply of foreign exchange. The implementation of the Plan involves an understanding of the respective roles of public and private agencies which are discussed in the next chapter. Here we would emphasise that the scope of the Plan embraces both the public and private sectors of the economy, though in varying degrees of detail and firmness.

10. Because planning in Pakistan takes place in the context of democratic government, the targets selected, and the measures recommended to achieve those targets, must be capable of winning popular approval ; there is no purpose in setting goals and prescribing means which might be practicable in another environment, but which will inevitably be rejected by the people of this country. These considerations bear particularly on two essential elements of the Plan : the relation between consumption and investment, and the relation between public and private enterprise. If Pakistan were a totalitarian society bent on maximising the rate of economic development, regardless of hardships imposed on the people, the level of capital formation might be higher than that contemplated by the Plan. The Government could then decree, and if necessary apply by force, the decision that standards of living, low as they might be, would be reduced still further to increase the level of investment. This method of achieving a high rate of development is impossible in a country with low standards of living but devoted to the ideals of a free society. Existing levels of consumption are already austere for the vast mass of people, and it is neither desirable nor practicable to depress them any further. On the contrary, it is urgently necessary to raise them ; we expect that during the Plan period they will improve with increases in national income. But a substantial part of increases in national income must be devoted to investment, and the people, therefore, cannot expect more than a modest improvement in living standards. This is the price that has to be paid for many years to come in the effort to achieve a diversified and high-level economy which would permit better standards of living to future generations. Again, an acceleration of development programmes to the point of impoverishing existing standards of consumption would necessitate extensive and rigorous controls on the use of resources, including the power to order men and women into specified occupations and localities. Apart from their impracticability, these methods would be repugnant to the national ideals which have been enshrined in the Constitution recently adopted. An overwhelming preponderance of economic activity is in private hands, and it is well-established public policy that it should remain there. We must therefore give full consideration to the environment within which private enterprise can flourish.

11. The scope of the development programme is inevitably limited by the lack of statistical and other information available and by uncertainties as to the future. The absence of relevant statistical data and the inadequacy of statistical services represent serious deficiencies, which must be remedied in the near future. The present state of statistical information is discussed in detail elsewhere (chapter 8) and proposals for its improvement are presented. Despite these limitations, the Plan presents fairly detailed estimates of production levels, investment requirements, balance of payments effects, and of other major aspects of development. Where information is not available, estimation has been necessary. Despite the care taken in estimating them, the relevant magnitudes estimated present for the most part approximations to be revised when more information becomes available.

12. In short, the scope of the development programme is such as to cover all the resources, public and private, which can be devoted to increasing the national income in the short or long run and to the other goals of economic and social development. This does not mean that all activities will be planned or even estimated in detail. But all development activities represent claims for investment funds, foreign exchange, and other scarce resources, and consequently all must be taken into account in formulating the development programme.

## THE MAGNITUDE OF THE PROGRAMME

### Total size

13. We include in the development programme, not only investment in building and equipment, but also increases in the recurring costs of education, health, and other public services which form part of the objectives of development. These expenditures, though not investment in the normal sense of the word, are included in the programme because they must be budgeted along with investment expenditures to secure the objectives of development. An approach to the determination of the total size of the programme may be made through a statement of requirements, or through an estimate of available resources. If requirements are stated in terms of a general target, such as a given increase in national income or the creation of a given number of jobs, and if objectives consistent with the general target are set for those sectors in which development is proposed, it is possible to estimate roughly the capital resources and foreign exchange required to attain these objectives, and this estimate might be taken as the total monetary magnitude of the programme. One advantage of this approach, if the objectives are not unrealistic, is that it shows clearly the magnitude of the task to be accomplished. It focuses attention, for instance, on the volume of savings as a proportion of the national income that must be realised if the Plan is to succeed and on the amount of foreign exchange that will have to be made available. If the targets are unduly optimistic, however, an attempt to realise them is apt to produce either a serious inflation or to lead to the imposition of authoritarian controls. And it is hard to see how targets can be realistic unless they are set with some regard to the prospective availability of resources.

14. The other approach is through an estimate of available resources. If it is assumed that these resources are effectively deployed for the achievement of the development objectives, an estimate can be made—though again with a substantial margin of error—of the prospective development programme. This method has the advantage of greater realism, but also the possible disadvantage of suggesting targets that fall below what the community can, with effort, be expected to accomplish. Unless the country aims at something which appears to be slightly outside its reach, it may end up by doing less than was possible.

15. If targets are selected with some regard to the resources likely to be available, and if at the same time, resource availability is estimated with the objective of stretching capabilities to their limit, these approaches are not inconsistent. In preparing the Plan we have laid emphasis on the resources expected to be available, but we have attempted to estimate these resources on the assumption that every effort will be made to increase them within the limits of the possible.

### Geographical distribution of the Programme

16. It must be one of the aims of national policy that the different areas of the country should achieve the same general standard of living as early as possible. We have, therefore, kept the requirements of relatively undeveloped areas particularly in view in preparing the Plan. In view of the marked geographical immobility, even among educated classes except at high levels, regional considerations must play a special part in deciding the pattern of investment. The speed of development bears a close relationship to the stage of development of an area. The more backward an area, the more difficult it is to stimulate its development, to provide the roads, communications, water supplies, power and other "social overheads", and to set up the minimum administrative and technical organisation required. In an area like Baluchistan the provision of transport will be difficult and

expensive and will yield no proportionate economic results in the near future. Within the resources available, however, every attempt must be made to accelerate the pace and to bring the benefits of economic development to the under-developed areas.

17. The problem of regional development is specially acute between East and West Pakistan. Because they are more than a thousand miles apart, there is very little movement of population between the two Wings. Even the movement of goods cannot be as free and smooth as in contiguous areas. This means that so far as possible, and subject to other objectives of the programme, economic opportunities should be moved to the people rather than the people to the opportunities.

18. It is a matter of some importance that the average standards of living in the two Wings should become approximately equal. Social accounting is its early stages, and national income statistics do not yet serve as a reliable guide in planning. Any attempt to prepare such statistics for parts of the country will be confronted with still greater difficulties, but it must be made as soon as possible.

19. The development programme we have prepared for East Pakistan is the maximum—perhaps more than the maximum—that we consider feasible. The limit is set, not by the claims of the rest of the country on the available resources, but by the administrative and technical organisation which exists or can quickly be created in the Province, and by the availability of trained personnel. It would be unreasonable and uneconomic to hold back the programme in the West merely to achieve a general equality between the two Wings. Equality of living is an important objective, but we cannot advocate its achievement at a low level by keeping down the total amount of development. Not only would this injure West Pakistan, with no benefit to East Pakistan ; it would injure the country as a whole by reducing the total resources applied to development, and jeopardise the progress of East Pakistan itself. For many years to come, development in both Wings will be limited by what they can accomplish and not by the financial resources available to them. The greater the total progress of the country, the better will be the prospect of quickening the pace of development in less developed areas.

20. Development expenditures have been smaller in East Pakistan than in West Pakistan. For this, there are historical reasons. Prior to partition all Pakistan areas were the victims of neglect but East Pakistan far more than West Pakistan. The two Wings therefore started after partition from different levels of development. East Pakistan was wholly dependent on Calcutta ; it supplied goods and raw materials to Calcutta, and received processed goods in return. There were practically no harbour facilities for its imports and exports, and all communications converged on Calcutta. No development had been executed or even planned for East Pakistan. This situation has changed since partition and East Pakistan has acquired a large measure of economic independence, which is a necessary condition for development. Transport services have been improved, harbour facilities have been provided and a beginning has been made in industrial development. There is thus reason to think that foundations have been laid for rapid development.

21. The whole country was deficient in administrative experience and technical skill, but again this was especially so in East Pakistan. For about two centuries the Muslim of East Pakistan had been denied their share in administration, business, and industry except in low positions. Pakistan began the process of transforming this situation, and progress is being made in all directions. Economic progress in a neglected under-developed area needs first the initiation of a process for fulfilling basic conditions, such as improved administration, technical knowledge and skill, transport facilities, the collection of information about national resources and the preparation of sound and feasible schemes. In the absence of technical skill and knowledge, it is impossible to prepare schemes in sufficient detail to establish their soundness and feasibility, which is necessary in all circumstances.

22. At partition, West Pakistan received nearly seven-eights of the enormous influx of refugees, requiring expensive arrangements for resettlement. West Pakistan is a much larger area than East Pakistan, with mineral and hydro-electric potential, but with scarce supplies of water, and is therefore dependent on irrigation. A number of power, irrigation and industrial schemes had been planned or started before partition. Although the total area of West Pakistan is large, the pressure on cultivable land is heavy, and long distances involve heavy expenditure on transport and communications. In parts of the former Baluchistan, Sind, Punjab and the Tribal Areas, conditions of living are poor.

23. We do not believe that there is any significant difference in the magnitude of potential economic opportunities between the two Wings ; the present inequality in the rate of development is attributable to past history and is only temporary. East Pakistan is rich in agricultural and raw material potential, but short of land. West Pakistan is short of water, but has mineral and hydro-electric potential, in which East Pakistan is at present deficient. With a special effort in which the Government and people of East Pakistan must play the major parts, fully assisted, however, by the Federal Government, equality in the rate of development can be achieved.

24. We have tried to formulate a larger programme for East Pakistan. Initially we studied the proposals received early in 1955 from the Provincial Government of East Bengal, then under Governor's rule, suggested a considerable increase in the programme, and agreed on provisional conclusions with the Provincial Government. When a new Provincial Government was installed, we held further consultations with them, and they made additional proposals, which we examined and discussed together. Those proposals which appeared to us to be reasonably firm and feasible have been included in the Plan, which was correspondingly enlarged. But most have yet to be prepared in detail, to establish their technical feasibility and economic soundness. In addition there are demands of a less definite nature, which cannot be included as specific schemes ; they include ideas for flood control, drainage and irrigation developments. We have recommended the creation of a reserve of 1000 million rupees for East Pakistan to provide for such schemes when they are ready for inclusion as development plans. Some may be ripe in the near future, but most of them will require technical studies and detailed planning for two or more years.

25. There are also certain areas in both Provinces, which stand in special need of development. In West Pakistan, large areas, amounting to about 175,000 square miles have been the subject of neglect for centuries. They include Quetta and Kalat Divisions, the Tribal Areas of the North West Frontier, including the former States of Chitral, Dir, Swat and Amb, and some of the valley districts of the former Punjab, such as Muzaffargarh and Dera Ghazi Khan. Their total population is something under 6 millions, but the pressure on the land is heavy, because rainfall is scanty, badly distributed, and very irregular, with the result that only a very small area is under cultivation and the greater part is wholly arid. The people are generally extremely poor and backward, and in part torn by tribal feuds. They subsist on a primitive base of agriculture, range livestocks, and some cottage industries. The income *per capita* has never been estimated, but all known facts point to its being far below the general average of Pakistan. Fundamental information about resources, production, and employment is wholly lacking. The Tribal Areas of East Pakistan, although much smaller, also suffer from the effects of past neglect. Lack of transport and communications, educational and health facilities, and a primitive economy are the main problems.

26. The Government of Pakistan have been alive to the economic problems of the people of these areas, and a beginning has been made with economic development. In West Pakistan, two teams of experts have carried out a preliminary economic survey of the Kalat Division ; an aerial survey of the major parts of the less-developed area has been completed, supplemented by ground geological reconnaissance surveys in Quetta and Kalat Divisions ; a beginning has been made on some projects for conservation and utilisation of water resources, and a number of small schemes for harnessing surface water have been completed. A number of comparatively large projects like the Nari Bolan, the Kurram Garhi Weir, and the Warsak high-level canal are now under construction. The communications of the area have been improved ; in particular, a 500-mile fair-weather road linking Quetta-Kalat-Karachi is under construction. In the frontier regions of the former N.-W. F. P. and Baluchistan Administration, the number of primary and secondary schools has increased between 1947 and 1955 from 201 to 440, and from 34 to 56 respectively. The Pakistan Industrial Development Corporation has established woollen mills at Bannu and Harnai, which will help ensure stable prices for the wool produced in the Tribal Areas, and increase employment opportunities. Arrangements have been made for exploratory drilling for oil, which has already led to the discovery of a large supply of natural gas.

27. One of the objectives of the development programme is to bring the less-developed areas in both Provinces up to the level of the country as a whole. This will be difficult owing to lack of prepared and specific schemes, sufficient technical and administrative personnel, and to inadequate basic facilities for training and communications. The Plan, therefore, places particularly heavy emphasis on investigations and surveys of these areas, on the training of personnel, and on the establishment of communications, which will lay the foundation for substantial development later. Some special provisions have also been made for these areas—for example, Peshawar University is to be assisted in carrying out a social and economic survey of the Tribal Areas, and in developing continuing research work on the tribes ; students from the Tribal Areas in both Provinces are to be given scholarships for outside schools ; special incentives are suggested for attracting qualified men to work in the Tribal Areas. A special allocation of 5 million rupees for Tribal Areas has been proposed to support small ' self-help ' development schemes wherever opportunities arise or can be created. Additional provisions are foreseen if those proposed are usefully employed. About one-third of the total expenditure on civil roads in West Pakistan are intended for the less-developed areas. We have made a substantial provision for investigation of water resources in these areas, which will require nearly six million rupees in Quetta and Kalat Divisions alone. In addition, substantial provision has been made for the development of agricultural, health, education, and other services in the under-developed areas, as an important phase of the regular programme in these fields.

28. We believe that development in these areas can take place much more rapidly in the later years of the Plan, as soon as the foundation for such acceleration—the surveys, training, communications—has been provided. In the case of the Tribal Areas of East Pakistan, the substantial reserve funds available for that Province can provide the resources for the schemes to be developed later. For the less-developed areas of West Pakistan we have provided a special reserve of 100 million rupees that can be drawn on as additional schemes are prepared. With the unification of the Province, development in the less-developed areas may be speeded up by transferring technicians and administrators from the better staffed areas, perhaps providing a special posting allowance. The Government of West Pakistan are alive to the urgency of the problem of the less-developed areas, and we hope that they will be able to prepare additional productive schemes in the near future. When these are available, the lack of financial resources should not be an obstacle to their execution.

29. The total public programme included in the Plan is distributed as follows :

| | (Million rupees) |
|---|---|
| East Pakistan | 30,00 |
| West Pakistan | 35,00 |
| Centre | 27,30 |
| Total | 92,30 |

**Shortfalls and flexibility**

30. This is the first time that the country will embark on a planned effort on this scale. In the first place the magnitude of the Plan is large ; in the second place it embodies a diversified programme, parts of which require emphasis on sectors of social and economic life which have either been largely neglected, such as housing and social welfare, or have received insufficient recognition, such as technical training. It would be unrealistic to expect the programme to be achieved in full by 1960— though much more will be done than could be attained under an easier approach of unplanned effort not tied to ambitious targets. We must reckon at best on a shortfall in the expenditure targets, perhaps of the order of 15 per cent. A forecast of the shortfall is necessary so that we may be forewarned and be ready with budgetary and other administrative techniques to check further deficiencies ; without such precautions the shortfall would be much greater. Where the shortfalls are likely to occur, and in what relative magnitude, cannot be forecast ; if it could, the Plan would have been correspondingly adjusted. It follows that we must seek to preserve the maximum of flexibility in the Plan, so that resources under— utilised in one sector can be mobilised to good purpose. One essential means to such flexibility is to review, and if necessary modify, the development programme annually in the light of experience and actual economic conditions.

## THE USE OF DEVELOPMENT RESOURCES

31. Given the total size of the programme, the problem is to allocate the available resources so as to make the maximum contribution to economic and social development. Table 1 below presents our recommended division of development funds for the Plan period among the various sectors. If it is proposed to increase the provision for any particular sector, certain questions are relevant. First, from what other sectors are the resources required for the proposed expansion to be drawn, and what will be the effect of this transfer on the rate of growth of national income ? This is the question of priorities, or efficiency in the use of resources. Second, do the administrative organisations necessary for the proposed expansion of the particular sector exist? This is the question of administrative feasibility. Third, if the proposed transfer of development funds is carried out, how will it affect requirements for foreign exchange, particularly materials and skilled labour, and are all these new requirements consistent with expected supplies? This is the question of consistency.

### TABLE 1

### Public sector development programme, 1955-60

| | (Million rupees) |
|---|---|
| Village AID | 2,43 |
| Agriculture (including colonisation, animal hunsbandry, fisheries, forestry, credit) | 8,86 |
| Water and power development | 26,01 |
| Industry (including fuels and minerals) | 10,76 |
| Transport and communications | 16,42 |
| Housing and settlements | 7,71 |
| Education and training | 5,81 |
| Health | 2,87 |
| Social welfare | 33 |
| Labour and employment and miscellaneous | 16 |
| Reserves | 11,00 |
| Total | 92,36 |

### Priorities

32. The question of priorities arises because the supplies of resources available are inadequate to accomplish everything thought desirable. In order to do more in one sector, something has to be sacrificed elsewhere: the problem is one of balancing the gain and the loss. As an initial statement, it may be said that the solution requires a distribution of development funds among different uses, so that no possibility exists of increasing the total value of output by transferring funds from one use to another. The value of output, however, depends on producing goods and services that people are willing to pay for individually, or esteem highly as a community.

33. In general, the pattern of demand for major items of consumer goods can be assessed fairly closely. Requirements for social services like education and medical care are largely set by public policy. Large schemes to provide "social overheads" irrigation, power and transport, for instance—call for heavy development expenditure. The schemes included in the Plan are either projections of capital requirements for the private sector or development schemes presented to, or framed by, the Board for the public sector. There are obviously high-priority schemes in all sectors concerning which no serious question need be raised. The difficult problem is the determination of what schemes are marginal in relation to the possibly greater productivity of resources used elsewhere.

34. In short, the main areas of development investment are determined by a projection of the probable pattern of consumer expenditure, the over-riding need to save and earn foreign exchange, the necessity of providing " social capital ", and certain policy decisions concerning the provisions for educational, public health, and other services.

35. Given the total of the development programme, decisions about priorities in the allocation of domestic resources and foreign exchange, in training programmes and in the development of administrative organisations, constitute a necessary step in promoting the most efficient use of resources for attaining the objectives of the Plan. The broad examination in quantitative and qualitative terms of the claims of various sectors on prospective resources, summarised in paras. 44 to 64 below is sufficient to indicate the main channels of investment and to justify many of the development proposals. When it comes to a comparison of marginal schemes in different sectors and to a consideration of the probable effects on output of a proposed transfer of resources from one sector to another, a more detailed examination is desirable, though not always possible.

36. Any proposed transfer must be administratively feasible, and consistent with the Plan as a whole. If we assume that a proposed transfer of resources is administratively feasible and involves no inconsistency with other elements of the Plan, what are the criteria on which a judgment can be based? In general a transfer of resources is justified when the probable returns per unit of costs of the marginal scheme are higher in the sector where expansion is proposed than elsewhere. This judgment requires a careful comparison of costs and returns wherever the relevant data are available. We found it possible to make these comparisons in some sectors, especially in the industry programme, and to some extent also in power and irrigation.

37. But there is a further difficulty. Part of the investment costs of a scheme may be in rupees, but the remainder may require foreign exchange, into which the rupee is not freely convertible. Some of the schemes will produce goods that could be imported; the question arises how far requirements should be met by domestic production and how far

by imports. Still other projects will produce not only for the domestic market but also for export. In view of the shortage of foreign exchange, it would be necessary to consider carefully the probable foreign exchange requirements or the foreign exchange earning or saving capacity of every proposed investment.

38. At least a partial way out of the difficulty may be found by comparing the value of goods produced at home with the landed value of similar goods produced abroad. It is always possible, through import restrictions or higher tariffs, to raise the prices of some goods indefinitely, but this does not increase the national income. On the other hand, the import price without any duty underestimates the value of the commodity because foreign exchange is not available to import goods freely.

39. At this stage of development nearly all the country's industries need a substantial degree of protection from foreign competition. Certain of them, however, can earn a satisfactory return by selling their output at prices not more than 25 per cent above the landed value of equivalent imports, while others need a 100 per cent or higher margin. Clearly, if scarce investment resources are to be used so as to make the largest possible contribution to national income, investment should be preferred in the first group of industries rather than the second. But what is the appropriate degree of protection to use in estimating worthwhile investment in those industries when there is the alternative of importing to meet domestic requirements? If a figure as low as 10 or 15 per cent. were taken, there would not be enough profitable investment opportunities to absorb the quantity of capital proposed for industrialisation. On the other hand, if a protective tariff of 100 per cent were assumed, profitable investment opportunities might far outrun the resources available. It is necessary to employ some arbitrary figure: it is important, however, that the same figure should be applied to all investment calculations, when the alternative to domestic production is import.

40. The criterion of efficiency involved in comparisons of profitability must also be applied in the choice of productive techniques to be preferred in particular sectors. On irrigation works, for example, there is a choice, within limits, between the use of hand methods and mechanisation. Roads can be built of cement or bitumen. Electric power can be generated in hydroelectric installations or thermal plants. In all such cases a comparison needs to be made of the benefits and costs of each alternative, including an estimate of the imports saved.

41. The test of efficiency or productivity has wide applicability in some sectors of development, but only limited use in others. The import and export sectors must be scrutinised closely because the range of alternatives is great. Choices in fields such as electric power are more limited, because output has to be provided exclusively from domestic sources. But even in such fields as health and education, there is a limited room for comparison of alternative projects to provide a specified service.

**Administrative feasibility**

42. A development programme must not only provide for the most productive allocation of the available resources among different uses; it must also be a workable programme in the sense that the recommendations are capable of execution, that the organisations required either exist or can be created, and that the changes in customs and practices implied in the planned rate of development can be made. A large number of institutional and administrative considerations are involved, which are not subject to quantitative calculations. The application of tests of feasibility requires judgment of such things as the rate at which technological change can be brought about, the ability of agricultural workers

to acquire new skills, the response of the business community to various government policies, and similar matters. An application of tests of feasibility might point to a programme that represented a smaller departure from traditional behaviour, against one that required more radical changes, even if the possible benefits of the latter were somewhat greater.

43. The most serious limitations on the feasibility of the programme are to be found in the area of organisation and administration. Some of the relevant difficulties are discussed in other parts of this Report. Here it should be noted that the effective limitations on the size of the development programme, in the country in general and in East Pakistan in particular, are not lack of investment funds but rather considerations of feasibility. Considerations of feasibility also are effective limitations to the magnitude and timing of the Village AID programme, the agriculture programme in general, the housing and settlements programme, and many aspects of the education programme.

### Consistency

44. In any workable plan the various parts must be consistent with each other and with the total supply of resources. As applied to the goals for various sectors of the economy, consistency refers both to the demand for the output and to the supplies of the various goods and services required in production. If it is proposed to increase the output of certain types of consumer goods, there must be adequate outlets for this output either in the markets or in government programmes. If power and irrigation works are to be expanded, there must be adequate prospective supplies of cement, steel, equipment and other necessary materials either from domestic production or from abroad. The sum of the foreign exchange requirements of all sectors of the economy must not exceed the supplies of foreign exchange likely to be available year by year during the Plan period. And the total requirements for development resources must not exceed the prospective supply from domestic savings plus foreign earnings, investments, loans, and assistance. We have applied these tests of consistency to proposals contained in the Plan to the full extent that data permitted. We have tried also to make a comparative analysis on the basis of input-output estimates, but have not found it helpful in the present stage of statistical information in the country.

45. The fundamental test of consistency lies in whether the development programme is seriously impeded by the emergence of specific shortages of materials, foreign exchange, equipment, power, transport, or markets. The rate of economic growth is necessarily limited by the general discrepancy between what is available and what is desired. If planning is successful, however, the potential rate of growth will not be retarded because existing facilities are idle for want of power, because manpower is available but without employment opportunities, or because a profitable investment cannot be made for lack of foreign exchange. Consistency in the development programme can go a long way towards reducing the effects of the great scarcity of capital that is inevitable at the present stage of the country's development.

### Specific sectors

46. It may be useful to review briefly the claims of the various main sectors upon the limited development resources, in the light of these considerations of priorities, administrative feasibility, and consistency.

### Agriculture and irrigation

47. Agriculture in Pakistan not only employs over two-thirds of the labour force and generates nearly 60 per cent. of the national income, but also feeds the whole population, produces a large fraction of the raw materials consumed by industry, and accounts

for nearly all foreign exchange earnings. With the population growing at more than a million a year, and with present standards of nutrition hardly enough to sustain productive effort, a persistent increase in food production becomes a high priority requirement. The two principal means to increased food production are raising yields per acre on land under cultivation at present, and bringing new land into use. The first requires relatively small—though still substantial-amounts of scarce resources and foreign exchange. Bringing of new land into cultivation through irrigation works involves large capital investment with a relatively high foreign exchange component.

48. Clearly the first method should be used as far as possible, though it involves, among other things, the provision of training arrangements, which takes time. Sizeable results can nevertheless be achieved in the short run by the use of fertilisers and improved seeds and by measures against pests and diseases, which are, by and large, problems of organisation. The rapidity of population growth and the continued necessity of providing more land for refugees, together with the slowness of some of the processes of increasing yields from existing acreages, give a high priority also to efficient irrigation works designed to open up new lands for food production. Such works are needed also to provide more water for lands already under cultivation and to prevent some land from going out of cultivation. In this field the main planning problems are economising capital requirements, reducing the foreign exchange component, and minimising the time taken to bring the new land under cultivation.

49. The requirements for agricultural output as raw material for industry, though relatively small, are growing rapidly with the expansion of industry. The priority given to expansion of agricultural output for such use depends largely on that given to the expansion of industry.

50. The foreign exchange earnings of agricultural exports constitute an essential element in the development programme. A very high priority must necessarily be assigned to any effective means of expanding these earnings. Because the domestic manufacture of cotton is expanding rapidly, its output must also be expanded, to retain a sufficiently large margin for exports. Foreign exchange earnings, however, are a function not only of the volume of exports but of the price at which they are sold. And prices, in turn, depend upon grade and quality. These and other considerations suggest that means of improving the grading and the quality of cotton and jute as well as other raw material exports are priority measures, to be considered along with an expansion of physical volume.

### Industry and Power

51. The large expansion of industry in Pakistan during the last few years has been heavily concentrated in industries processing local materials, such as jute, cotton, paper, cement, fertilisers, and wool. In the first three industries the country has not only attained self-sufficiency but can now manufacture some types of products for export.

52. One of the results of the rapid industrial expansion is that auxiliary facilities have not kept pace. In certain cases plant installations are idle or partially idle for lack of power; subsidiary industries capable of producing spare parts, packing materials, and dozens of small items required for industrial processing have not yet adequately developed. Investment in facilities needed to put existing installations in motion and to maintain efficient operation in industries to which resources are already committed should have a high priority.

53. The scarcity of power at present represents a bottle-neck of particular severity. Finished plants lie partly idle for want of power, and industrial enterprises install their own generating plant when service from a public station would be more economical. Hydro-electric installations to which capital is already committed are fully justified, but they take

so long to complete that thermal capacity must be expanded to meet pressing requirements. This thermal capacity will not, however, fall into disuse when hydro-electric power becomes available; by any test the expansion of power supply must receive high priority.

54. The use of development funds to remove obstacles to the efficient use of existing capacity, the expansion of facilities, and the installation of new capacity in those industries which are capable of earning or saving foreign exchange, can obviously lay claim to high priority. Investment in new fields and relatively large expansions in newly-started industries are also sometimes necessary to provide materials for development programmes in other sectors or within industry itself. This is indeed the requirement of consistency in planning needed to avoid foreign exchange liabilities. A larger fertiliser plant or large expansions of cement plants are instances of such industries. Industrialisation is a necessary part, and indeed ultimately a main objective, of economic development, and familiarity with industrial technology can facilitate growth throughout the economy.

55. In preparing the Plan, we had before us a wider range of proposals for industrial expansion than could have been undertaken with the resources available during the Plan period. We had therefore to select for priority those which offered the best returns, either directly or indirectly, in relation to the country's needs taken as a whole. Because of the lack of detailed information, we cannot be sure that some of the proposals omitted will not, when further information is available, merit inclusion; but we are confident that all the schemes already included should be given high priority. The programme we have proposed is large and varied, and will make heavy demands on all the resources of initiative, drive, and organisation which can be mobilised.

56. Cottage and small-scale industry stands on a somewhat different footing. This type of industry is extremely labour-intensive, offering employment to workers for whom there are few, if any, alternative employments ; foreign exchange requirements for expansion are small; and, because the needs of the villages for manufactured articles like shoes, soap and implements can be met largely by cottage and small-scale industry, provision for an increasing population and for some increase in *per capita* consumption in rural areas depends on expansion in this sector.

### Transport and communications

57. Partition brought the problem of developing transport and communications between the two Wings, of re-organising the transport system of East Pakistan, which formerly converged on Calcutta, of strengthening, improving and expanding the rail, river, and road transport systems, and of improving harbour facilities.

58. There is a large backlog of deferred maintenance and repair on both East and West Pakistan railway systems. A high priority must be assigned to the rehabilitation of assets and the strengthening of existing facilities. Beyond this, large sums could usefully be spent on the acquisition of new rolling stock if ample resources were available: in present circumstances the major objective must be improvement of the operating efficiency of the existing net-works, using mainly the rolling stock now in service or on order.

59. The road system of East Pakistan needs considerable expansion, but special care is necessary to prevent injury to the natural drainage system in areas of heavy rainfall. The relatively dry areas in the north are suffering for lack of roads. The inland water transport system in East Pakistan needs re-organisation and development. The improvement of road and water carriage must be considered to have a high priority. The road system in West Pakistan is relatively better developed except in the former Sind and Baluchistan, which should have a high priority, while the other roads in the province should develop as

" social overhead " in step with the development of the economy as a whole. The development of village roads is a high priority item in all parts of the country, and is so treated under the Village AID programme.

60. The long distances and the relative inaccessibility of certain areas put a premium on the development of air transport, and a substantial extension and strengthening of the present system are called for during the Plan period.

61. The completion of Chittagong Port facilities, the development of the Mangla Anchorage, renewals of wharves at Karachi, and the expansion and strengthening of sea transport are all high priority items.

62. Communication systems—postal, telegraph, telephone and radio—are with certain exceptions in relatively good shape, and should expand with the rest of the economy. The country has, however, lagged behind reasonable expectations in the provision of telephone services, and this deficiency must be remedied. Tele-communication services between the two Wings need considerable strengthening, and radio facilities must be given special attention.

### Housing, education, health and social welfare

63. Priorities in the broad areas of agriculture, industry and transport can be considered largely in terms of courses of action promising the greatest contribution to the productivity of our resources. Obviously other considerations have to be taken into account in judging programmes in the fields of housing, health, social welfare, and education. Nevertheless, even in these areas the criterion of productivity has significant applicability. Housing for workers is as important as buildings to house machinery. Technical training has economic effects even in the short run, and the expansion of other educational services cannot fail to make a contribution to production over a longer period. The same thing may be said of health measures.

64. There is a very great need throughout the country for better houses and for improved community facilities like water supply and sewerage systems. These are necessary as social objectives, to improve the health and well-being of the people. They could also be well-justified on the narrower economic ground of increasing the national income through increasing people's working efficiency. We have proposed that in the Plan period, priority should be given, in town and country alike, to water supply and drainage systems, as keys to healthier living conditions. Some 250,000 new houses should be built in the towns, a large proportion of which should be specially allocated to refugees; the cost of this housing programme to public funds can and should be reduced by making the fullest use of local materials and "self-help" in construction.

65. Education is a sector in which very large funds could usefully be spent to develop the necessary organisation and train the required personnel. Although national expenditure on education has been doubled since partition and half the children of primary school age are now in school, the benefits derived are relatively small because of inadequate equipment and staff. Lack of resources necessitates a fundamental choice between improving existing facilities, and creating new ones, because it is impossible to do both in the present Plan period. We believe that the main emphasis should be placed on improvement. Improvement of schools requires a large number of better qualified teachers and dictates strong emphasis on enlarging and improving teacher training centres.

66. Technical and vocational education presents a somewhat special problem, because this type of education is directly related to the economic development programme. A substantial number of technical schools or ordinary schools providing some technical courses

have been established, and others are in progress. Starting these institutions is a matter of high priority. For the most part vocational training should continue to be provided by industry and commerce. In-plant training programmes particularly need to be strengthened and expanded, because they are the principal source of supply of the skilled manpower required.

67. In the health field the country's needs are vast. Shortage of resources makes it necessary to concentrate on those sectors in which improvement is likely to make the greatest contribution to general health standards within a short period of time. The major opportunities are to be found in the field of preventive measures; this means emphasis on improving water supplies and sanitary facilities, and on malaria and tuberculosis control. With effort it should be possible to cover the whole country with a malaria control programme during the Plan period, and to improve the control of tuberculosis. The improvement of rural water supplies and sanitary facilities is primarily a question of organisation in the villages.

68. Generally, the development programme can be characterised as a plan for expanding agricultural output; for eliminating bottlenecks to industrial production, completing programmes already well begun in certain industries, and setting up new units which will save or earn foreign exchange and provide substantial employment; for improving the " social overhead " capital, undertaking only those expansions which are necessitated by the growth of the economy; and for substantially increasing and improving such social services as education, health and welfare. The concentration on agriculture is indicated by the total of the proposed expenditure on Village AID, agriculture, irrigation and some social services. The public expenditures on industry are, of course, supplemented by the much larger private investment in this field. Proposed expenditures on transport and communications are large in absolute figures; in relation to the importance of this sector they are, however, relatively small.

69. In summary, the major steps in formulating the development programme were:

(*a*) An estimate of development resources from domestic savings and from abroad, for both public and private investment;

(*b*) A preliminary division of the total resources under government control among major uses (agriculture, irrigation, industry, power, etc.). This division was necessarily extremely rough;

(*c*) Selection of the most productive schemes in each sector within the local supply of public development resources. For many uses of public resources adequate schemes were available. In exceptional cases, proposals were included as being essential even though the actual schemes had not been planned in detail. For the private sector this procedure could not be applied: estimates were made of the prospective requirements and returns on the basis of past investment and production, and of forecasts of demand;

(*d*) Application of tests of feasibility to the various sector programmes, and revision in the light of these tests;

(*e*) Application of tests of consistency to the sector programmes, against requirements for local goods and services, foreign exchange availability, and total use of development resources;

(*f*) Comparisons of the marginal schemes in each sector on the basis of returns from investment and the best use of foreign exchange; and

(*g*) Successive revisions of the tentative programme to meet limitations of resources and to make any changes indicated by the comparison of alternatives.

70. A development programme is only as good as the information on which it is based. Reliable statistics and other data are woefully lacking. This is a deficiency that must be remedied. It must also be emphasised that the five-year Plan is a Plan extending into the future, and the future is uncertain. Many things relevant to economic development will happen that have not been foreseen and could not be foreseen. This means that the Plan cannot be regarded as a set of irrevocable decisions. It is a flexible instrument of public policy to be adjusted when conditions alter and when new information becomes available. It must be kept under constant view, and annual revisions made in the light of experience gained and changing needs and prospects.

# Chapter 5

# PUTTING THE DEVELOPMENT PROGRAMME INTO OPERATION

## INTRODUCTORY

1. Development has been in progress for several years, and a considerable amount of work has been accomplished or is under way now. This has been going on generally in the framework of familiar patters of organisation, systems, and attitudes. Now that the country is embarking on a comprehensive Plan, directed towards defined goals and embodying a programme for the balanced development of resources on the maximum scale and at the maximum speed, a dynamic approach in place of the usual *status quo* attitude is required. To put the Plan effectively into operation will require legislation, administrative decisions, and a certain amount of governmental reorganisation. Important sectors of the programme depend upon private decisions to invest and to produce, which must be guided and ensured by appropriate public policies and necessary administrative and technical assistance. It is also necessary that there should be a public opinion convinced of the importance of economic development and aware of the steps needed to bring it about. Above all, the country should be ready and willing to promote new social and economic institutions, and to modify and adapt existing ones to meet new needs and to satisfy new urges of the people.

2. The institutions, customs, incentives, administrative practices, and organisations conducive to the process of development are different from those adequate to the maintenance of the *status quo*. The primary functions of government, concerned with internal security, tax collection and administration of justice, remain important ; and promoting and directing a development programme involves new operations and new skills and therefore demands a new outlook and approach. New opportunities are waiting to be explored and new methods to be discovered. It is not the routine conduct of ordinary activities on a traditional pattern with an eye to immediate profits that will promote development, but rather research into new techniques, investment of earnings, and expansion of output to meet the demands of a growing economy. Change and adaptation are of the essence.

### Agencies for development

3. *Private Enterprise.*—Private enterprise has to play an important role in implementing the Plan. As an agency for economic development it has large advantages. It permits a high degree of decentralisation, with authority placed in close contact with the act of production, so that no long chain of intermediaries is necessary. It is extremely flexible, having a capacity to adapt its organisation and methods to the task in hand. Private ownership is attractive to enterprising and venturesome people, and promotes initiative and leadership. The encouragement of talented men of promise is always of crucial importance, but it is especially so in the present early stage of development. The selection and promotion of personnel is not hampered by the restrictions that are inevitable and proper in the public service. The management of one's own property is apt to be conducted with much greater care than the management of publicly-owned resources. In the rapid progress of industrialisation that has taken place in recent years, private enterprise has demonstrated its ability to take up and accomplish new tasks with skill and vigour. We believe that in the immediate future, private enterprise, if fully supported and properly guided, can perform even greater tasks. The public agencies will have large and growing responsibilities of their own and the assignment to them of tasks which can be successfully accomplished by private enterprise will restrict the pace of development. The public agencies should concentrate upon their own large and varied tasks, and in the fields open to private enterprise operate only in those geographical areas or sectors of development

where private action lags. All agencies, both private and public, should be so employed and supported as to achieve the defined goals of national policies and programmes as efficiently, economically and rapidly as possible.

4. At the same time, private enterprise carries with it responsibilities which, if unexercised, can effectively blunt this instrument of economic development and even give rise to forces tending to restrict or even extinguish it. The primary social functions of private ownership are the accumulation and productive investment of capital, and the development of new and better methods of producing the goods and providing the services which the people need. If these social responsibilities are realised and discharged, it can be said that the private interest in profit and the public interest in economic development are brought together.

5. An effective performance of the social functions of private enterprise in the process of capital formation means first that business is conducted not with an eye to maximum immediate returns, but rather with the understanding that a solid, expanding concern is one that over time continues to satisfy its customers and its labour force, and maintains its plant and equipment in a good state of repair. It means, secondly, that a large fraction of earnings is invested in expanding the business or in developing new opportunities, rather than consumed in luxurious living.

6. Private enterprise can perhaps make its principle contribution through the discovery and application of new and better products and new and better methods of supplying existing products, which is one of the essential elements in economic growth. We have elsewhere emphasised the need to expand applied research and to disseminate the results of research. For the time being the Government has larger role to play in establishing and maintaining research organisations. But in the application of research findings to producing and marketing goods and services private enterprise has enormous advantages. To realise these advantages, however, requires an active search for new opportunities, rather than passive conduct of routine operations.

7. Private enterprise also has an important social function to perform in opening up the road to talent and skill. The process of personnel selection and promotion in the public services is necessarily a routinised affair, and inevitably, even in the best circumstances, bureaucratic. Private enterprise can be much more flexible. It can recognise and advance talent without the same regard for educational qualifications, seniority rules and the like, and without the fear of public criticism. In order to take advantage of this flexibility, however, private enterprise must in fact actually search for talent and use exceptional individuals to the full limits of their capacity. To use the family firm as a haven for incompetent relatives is to ignore one of the important social functions of private enterprise. Such a course retards progress, invites justified criticism, and endangers the institution of private enterprise.

8. Private enterprise, if it is to maintain its place in our economic system, must recognise the need to check extravagant living, exploitation of shortages and monopoly, and unscrupulous methods of business. The public administrative machinery is not able at present to curb these evils effectively. The improvement of the tax collecting machinery to prevent evasions ; the enforcement of estate duty law to reduce concentrations of wealth ; the development of a professional managerial class, conscious of the social responsibilities of private enterprise ; increased production and supplies of goods which will check profiteering ; the distribution of licences with a view to greater equality—these and the like are the objectives to be aimed at, and they must figure as important elements of the public policy. In the present stage of the national economy, drastic measures to restrict the scope of private enterprise will be harmful to development. The elimination of great concentrations of land-owning with feudal characteristics is, however, an urgent need and must remain high

on the priority list. It will bring about a wide measure of equality and social justice and go a long way to satisfy the urges which are stirring the community. It will introduce favourable conditions for rural and agricultural development. The unsocial tendencies of business and industrial management derive largely from the existing concentration and character of land ownership ; they are features of the stage of transition from feudalism to industrialism.

9. Private enterprise is performing a very useful social function by promoting economic development. There is no doubt, however, that if it does not develop a sense of social purpose soon enough, the demand as well as the justification for expanding public enterprise by reducing the scope of private enterprise will become strong. The conditions for developing public enterprise will be more favourable at a more advanced stage of the economy, with more experienced and better staffed and organised public agencies which are dependent on an adequate supply of experienced managers and qualified technicians. Equitable distribution of economic power is very important but at the present stage of our development production must have a somewhat higher priority. As the economy acquires a dynamic quality and the public administrative machinery becomes more adequate to its tasks, conditions will change. We believe that private enterprise can make a great contribution to rapid economic development in a democratic society, provided those in authority act with due regard to their social responsibilities. If these responsibilities are disregarded a growing and justified movement for transferring authority to public hands must be expected.

10. *Public Enterprise.*—Although it is the policy of Government that, in order to achieve the highest rate of development, public enterprise should concentrate on tasks which cannot be performed efficiently by private enterprise, nearly two-thirds of total development expenditure during the period of the Plan will be undertaken by Government. Even if we include private non-monetary investment in the programme, well over half of development measured in financial terms is in public hands. This discrepancy between the over-riding importance of private activity in the use of existing resources and the over-riding importance of public authority in the direction of new resources is explained by certain characteristics of the present stage of economic development.

11. First, at present an abnormally large proportion of total development expenditure is required for the provision of social overhead capital and services. The growth of private enterprise depends upon the adequate provision of these services. For a vigorous growth of commerce and industry the country needs effective transport, communication and power facilities, expanded industrial and commercial credit, research facilities oriented towards problems of production and marketing, and trained personnel; all of these are dependent on the public development programme. For a more prosperous agriculture there is need for research, advisory services, credit, improved seeds, fertilisers, water and drainage facilities ; all of these are strongly supported by the public development programme. Of the public development programme, about one-third is allocated to irrigation and power, about one-fifth to transport and communications, and much of the remainder to education, public health, social services, Village AID and agricultural extension. All these activities fall under the general category of social overhead services.

12. Secondly, the extreme inadequacy of the industrial facilities inherited at partition and the consequent excessive dependence on imports have forced the country to industrialise very rapidly. But the experience of Pakistani businessmen was largely concerned with land management, construction, commerce and foreign trade. Private enterprise is not attracted to some industries because of their technical complexity, high capital requirements, or relatively low profitability. Some geographical areas are also unattractive for lack of facilities. This, together with the risk involved in launching new enterprises in untried

fields, has forced the Government to undertake, through the Pakistan Industrial Development Corporation, industrial projects in those areas where private business is unwilling to venture. It is, however, the announced policy of the Government that enterprises built by the Pakistan Industrial Development Corporation should be transferred to private hands as soon as they have been established as going concerns and willing buyers are found.

13. Thirdly, a large part of development expenditures, public or private, at present comprises foreign loans and grants. Most of these are necessarily channelled through the budget. Foreign economic assistance makes a large contribution to the country's development not only by providing investment funds, but also by giving access to foreign exchange, of which the country is in short supply. Valuable as this contribution is, it will not be necessary to rely on foreign assistance indefinitely. As foreign aid declines in importance, the relative roles of public authorities and private enterprise in economic development will change.

### Measures for implementation

14. We discuss in the chapter on Public Administration the policies and attitudes required to enable the public sector to perform its role in implementing the Plan. In many fields, present Government units are not capable of executing the tasks assigned to them. They do not have the trained staff needed ; their organisational arrangements are very imperfect ; and their methods and procedures are unsuited to the scale and pace of the programme. In a real sense the first requisite for the success of a development programme at the present time, in both the public and the private sectors, is a substantial reform and improvement in governmental organisation and administration. Many government officers recognise this situation and are working hard to change it. All departments have to survey their resources of technical and administrative personnel and to make arrangements for recruitment and training based on expected future needs. Means should be devised to make the maximum use of experienced men by their employment in strategic positions, conflicting claims for their services being resolved by specially designated Federal and Provincial authorities. Public corporations and authorities should be established freely to manage commercial undertakings as well as for large multipurpose schemes which require a high degree of co-ordination in planning and execution, such as the co-ordinated development of water resources.

15. We believe strongly that the success of the Plan requires vigorous action to revitalise the institutions of local government also. We are aware of their disorganised state, whether they are panchayats, union boards, district boards, municipal committees or other bodies. But the Provincial Governments have to face the inescapable fact that development will not succeed without a revival of local self-government, and the Central and Provincial Governments must tackle the job with sufficient drive and determination to accomplish it.

16. For the effective co-ordination which will be necessary in executing the Plan, the Federal and Provincial Governments must be advised by competent planning units working closely together. The financing of large parts of the Plan will be joint which means that the Federal and Provincial budgets must be closely related. Very close co-operative relations are necessary between the planning units and the various ministries, especially the Ministry of Finance, to ensure that annual budgets reflect the Plan, that operations are conducted throughout the year with an eye to speed and results as much as to the meticulous observance of rules and traditions, and that foreign exchange resources are so deployed as best to accomplish the objectives of development. The public development programme has a large measure of firmness, and, given favourable economic conditions, its execution can be

ensured directly by the Government and its administrative agencies. The private programme has to be planned in detail and executed by private citizens. Steps have to be taken to ensure that as far as possible the pattern of investment of private funds and the activities of private citizens help to implement the development programme envisaged in the Plan. The Government have to adopt appropriate policies and extend suitable administrative and technical assistance.

17. First and foremost, the development plan must be understood and accepted. The publication of the draft Plan must be followed by widespread discussions of the conclusions and recommendations it contains. We expect to modify our recommendations where improvements are suggested. Even more important, all citizens need to understand what they can contribute to the development programme and what they may reasonably expect to receive. The success of the Plan will depend essentially on private initiative and co-operative action oriented towards the great goals of national development.

18. Secondly, many parts of the public development programme are designed to promote and facilitate effective private action. To this category belong the Village AID programme, agricultural extension, assistance to small scale and cottage industries, provision of technical advisory assistance to industrialists, provision of agricultural and industrial credit, the expansion of traditional public services, such as power, irrigation, transportation, communication, education, and public health. In addition to providing information and services for the benefit of private citizens, Village AID and agricultural extension also act as promotional and catalysing agencies, organising village activities, promoting co-operatives, and in other ways attracting local efforts into useful channels. Assistance to small scale and cottage industry takes such forms as research into production and marketing problems, provision of training facilities, preparation of plans, extension of credit facilities and provision of imported raw materials. One of the main functions of the Government programme is to expand and improve the public services needed by a growing economy.

19. Thirdly, we think that the Government should actively assist private firms and individuals in executing the tasks regarded as belonging to them. There is a fairly large programme of expansion, modernisation and development of industry in the private sector. Those responsible for its execution will require technical assistance and financial aid as well as administrative guidance. All these types of assistance must be available at the proper time and in the needed measure, with any necessary support from the Government for the individuals and firms who are carrying out the various parts of the programme and can be regarded as being in partnership with the public agencies for the successful achievement of development plans. Most enterprises, whether public or private, are in a sense national undertakings needed by the country for development ; public and private agencies are both instruments for carrying out the national programme and should be given equal treatment.

## Controls

20. The question of government controls is relevant to both the private and the public sectors. Administrative and social conditions are not favourable for the successful operation of physical controls, and we do not in general favour them. It will, however, clearly be necessary to continue the controls on imports, foreign exchange, new industrial enterprises and capital issues, in order to make sure that the scarce resources of foreign exchange and capital are directed into the uses that will yield the largest contribution to development. Direct physical controls may be needed to meet shortages of important commodities which cannot be countered by the application of the various possible monetary and fiscal measures. In particular, price controls and rationing may become necessary when essential supplies are short and the ordinary price mechanism threatens to cause serious hardships to the more

vulnerable elements of the community. This applies in particular to articles of common diet, mainly wheat and rice. We hope that such measures will not be necessary on any general scale, but the situation has to be watched and kept under effective control.

21. A rapidly developing economy cannot be altogether free from some degree of inflationary potential. The danger of inflation, however, must be kept in check by economic measures including, when really essential, the curtailment of expenditure programmes to reduce total demands on the available resources. We would not contemplate any curtailment of development except as an extreme measure to be used only in the last resort to protect the economy. Conditions exist in the country which point to the need of keeping the administration always in readiness to introduce controls to restrain prices of essential items of food and to ensure their equitable distribution in areas of shortage. People are moving from agricultural to non-agricultural occupations, both in East and West Pakistan ; the expenditure programmes, both public and private, are increasing the money supply in the country, and the monetised sector of the economy is expanding. As against this, the agricultural economy has still to acquire a dynamic quality to keep fully in balance with, if not ahead of, the expanding urban economy. The population must be assured food supplies in the needed quantities at reasonable prices. This is crucial to the steady execution of the development programme. The production of cloth, which is the second basic need of the people, is expanding, and we foresee no serious problem of supply during the Plan period.

22. In cloth, as in other essential consumer goods, even in conditions of general abundance, local scarcities and consequent distress can arise from the unsatisfactory and ineffective working of the distribution mechanism. Slowness and irregularity of transport, combined with depleted working stocks in the hand of the distributing agencies, can cause temporary shortages of a local character. Even local phenomena of this description can have very wide significance and distressful consequences. The two parts of the country are separated by more than 2,500 miles of sea for the transport of goods. The country is nevertheless one producing and consuming area, and maximum development can be planned and executed only on the basis of one single economy. This invests the problem of transport between the two Wings with special importance. Transport must be frequent, reliable and economical, and assure the maximum flow of goods. The development of river transport in East Pakistan, and of ocean shipping, should be seen in this perspective as an essential condition for the smooth functioning of the economy. This improvement of transport should be supplemented by measures for strengthening the machinery of distribution and supported by adequate working stocks of essential goods in strategic centres.

23. In order to achieve the targets under the Plan, it will be necessary for the Government to maintain a close watch over the unfolding economic situation, and to make coordinated and flexible use of the instruments of economic policy for the purpose of maintaining an appropriate adjustment between the available resources and the requirements of the Plan. There are bound to be fluctuations in the available resources induced by favourable or unfavourable harvests, rising or falling world prices, and variations in the rate of foreign aid. Although the Plan should be kept somewhat flexible, it would be a mistake to attempt to revise it drastically whenever short-term fluctuations in available resources occur. The scale, composition, and phasing of the development programme can be gradually modified, but abrupt changes would be intolerably disruptive. The Government must be continuously alert, therefore, to detect symptoms of lack of balance in the economy, and to take prompt corrective action, so that the development programme may be executed in a reasonably orderly fashion.

24. This requires a continuing assessment of the balance of payments to assure that foreign exchange is available to import raw materials and spare parts for existing productive capacity, and to import the capital goods required for expansion of capacity in

accordance with the Plan. At the first sign that supplies of foreign exchange are insufficient to meet programmed requirements, measures for remedying this stringency should be quickly formulated and applied. If the problem is faced promptly, measures will usually be found for meeting it without retrenchment in the development effort. Such measures might include (*a*) economies in non-essential imports on private or government account, (*b*) stimulation of exports, through subsidies and other means and (*c*) increased external aid. If the problem is neglected, however, development will inevitably suffer.

25. It will be necessary also to keep under continuous observation the balance of inflationary and deflationary forces in the economy. The growth in both public development spending and private investment expenditure under the Plan will result in an expansion of private incomes and consumption outlays. If the volume of consumer goods offered for sale lags seriously behind this growth in private consumer spending, inflationary pressures will result. To maintain a proper balance, attention must be given, first of all, to the supply of foodstuffs. This is one of the main reasons why the Plan places heavy emphasis on the expansion of agricultural production. If food crops are short in any one year, timely imports from abroad may provide an immediate remedy. Beyond this, it is necessary to expand storage capacity and increase stocks to a point where it is possible to withstand an adverse harvest without external aid.

26. It is not sufficient merely to detect the presence of inflationary pressures; their precise nature and impact should also be examined. When this has been done, appropriate remedies can be applied. In this connection it is relevant that changes in prices serve as an important guide for government action. It would be useful to develop certain selected indices of prices for different income groups in the community and to use them as barometers to facilitate effective and responsive government action under changing economic conditions.

27. Apart from measures to expand food supplies, it may be appropriate to make judicious use of other familiar instruments of monetary and fiscal policy. These include—(*a*) higher taxes, (*b*) retrenchment in public non-development expenditure, (*c*) higher interest rates, (*d*) postponement of capital issues for financing non-essential industries, (*e*) control over building construction and (*f*) measures to increase private thrift.

28. The real problem in an inflationary situation is to increase private saving in relation to private income. Higher taxation and a rigid scrutiny or postponement of all non-development expenditure, not justified on strong grounds of national policy, constitute effective methods of dealing with an incipient inflationary situation. Flexible interest rates and selective credit and capital controls have also been used with considerable success in several countries in recent years. It would be dangerous to rely on any one instrument of monetary or fiscal policy ; a many-sided programme may have to be devised. Retrenchment in the development effort should be applied only if it has been definitely established that other measures are inadequate to check inflationary pressures.

## Statistics for Economic Policy

29. For handling the instruments of short-term economic policy, a wide range of reliable statistical information is essential. The government have to act swiftly to meet the needs of a changing economic situation, to watch the effects of their measures, and to modify them as soon as necessary. We cannot too strongly emphasise the urgency of strengthening and developing statistical services. Equally urgent is the need for developing economic staff for advising and assisting the Central and Provincial Governments and their ministries. The establishment of permanent planning organisations at the Centre and in the Provinces will form the first step in a programme of creating and developing an efficient and adequate economic staff. Its realisation will need a steady effort continued over a period of many

years. The country is short of economists, and the demand for their services is expanding. A well-conceived programme of recruitment and training is needed for this purpose with an assurance of advancement to talented men.

## Evaluation and programme revision

30. A development programme, however carefully prepared, is inevitably an imperfect instrument, subject to change as conditions change and as new information comes to hand. Reliable statistical services are in the course of organisation and improvement ; technical surveys and investigations are in their early stages ; even essential information about physical resources is deficient ; and few fully prepared schemes are available. The development programme has been prepared carefully, but conditions will change and discrepancies can be large. A plan is composed of intentions, some very firm but all based on forecasts of conditions which contain elements of uncertainty. An unusually good or bad monsoon will alter estimated quantities throughout the programme. Forecasts of resources have been made for the period of the Plan, and the variations in any one year may be very large. Assumptions have been made about the rate of progress on various irrigations works, power installations, and other constructions. The actual rates may exceed or fall short of these estimates.

31. Because conditions are liable to change and information will improve, the development programme must be subject to a continuous process of evaluation and revision. The primary purpose of evaluation is to assess the results achieved, to probe causes of failure or success, and to search for means to accelerate the speed. Programme revision involves the application of the same tests of efficiency, consistency and feasibility to new proposals as governed the formulation of the original Plan.

32. It must be the endeavour to go on making orderly changes in the Plan in the light of new needs, better information and changing conditions, in order to improve its value and effectiveness and to accelerate the rate of development. As rapidly as possible, political and administrative conditions should be created which are necessary and favourable for the accomplishment of planned objectives. The passing of the Constitution has provided the framework as well as the conditions required for a nation-wide co-operative effort to deal with economic and social problems. The national resolve must be to face and overcome all obstacles, to do better and better and not only to achieve the objectives of the Plan, but also, if humanly possible to overfulfil them.

# PART III

# ADMINISTRATION AND DEVELOPMENT

## Chapter 6

# PUBLIC ADMINISTRATION

## INTRODUCTORY

1. Public administration is the instrument through which a government, interpreting the wishes and needs of the people, discharges its responsibilities to them. The scope of governmental responsibilities has been expanding all over the world, but nowhere is their range and importance greater than in the sphere of development of social and economic life in an under-developed country. Initiative and institutional facilities in the private sector are generally lacking. Trained manpower both in the administrative and technical categories is largely concentrated under the Government. The people are accustomed to look to the Government for initiative and leadership in all spheres, and expect high standards of integrity, efficiency, and performance. The prestige and authority of the public services in spite of their inadequacies is high, and successful enterprise in the private sector is difficult without their active support. There are large and important tasks, many of them of a basic character, which are totally beyond the resources of private initiative, finance, or skill. Pakistan has embarked on programmes of social and economic development and its public services are assuming new responsibilities which will rapidly increase in scope and magnitude as development expands and acquires tempo. The expansion, improvement, and development of the administrative machinery is, therefore, one of the primary tasks which the Government has to undertake for the successful discharge of its duties in the new era of development which the country has entered.

2. The defects as well as the merits of the existing administrative system stem largely from the fact that it is a heritage from a colonial power, which reared upon certain indigenous institutions a super-structure of concepts and systems imported from the home country but adapted to the needs of ruling a subject country. The combination yielded an efficient system of public administration admirably suited to the requirements of a government engaged largely on the primary functions of collection of revenue, administration of justice and maintenance of peace. Under the stress of social and economic necessity some changes took place in this system from time to time but fundamentally and broadly the methods and outlook of public services, the tasks they performed and the system on which they worked remained unchanged. The inevitable result is that, with the attainment of independence and the shift of emphasis in government policies from regulating the life of the community to positive actions for promoting its welfare, the system has become outdated and seriously inadequate. So far as law and order, administration of justice and collection of revenues—responsibilities which continue to vest in the Government as the irreducible minimum of administration—are concerned, the system continues to serve the country reasonably well. The efficiency of the system within this essential field invests it with a factitious appearance of adequacy for all purposes, including the new and supremely important task of planned development. This, on the one hand, creates a psychological atmosphere of complacence unfavourable to reform, and, on the other, increases the inertia of the system, its power of resisting change. The result is an inner conflict in the business of government. While government policies have a clear and definite bias in favour of development, the administrative system, wedded as it is to the *status quo* in its approach as well as in its organisation and procedure, tends to pull in a different direction.

3. The administrative machinery needs to be geared to the tasks of development and social advance. It needs to be reformed in quality and organisation and strengthened in size. Its outlook has to undergo a change so that economic and social progress should become its main purpose. Such a re-orientation of attitude is necessary to bring the people and the administration closer to each other, to develop identity of outlook and purpose and to create faith in the country's ability to achieve its goals. Unless there is movement

in this direction the gulf which existed between the people and the Government under foreign rule will not be bridged, and even the basic tasks of law and order will be confronted with increasing difficulties. We are aware that such a change has begun and for many officers, particularly those directly associated with development programmes, their work is acquiring a new purpose. But the pace has to be accelerated and the administrative leaders can perform a great service by setting examples which will influence the attitudes of younger officers towards their duties.

4. We are of the view that in the immediate periods the inadequacies of administrative machinery will operate as the most serious impediment in the way of maximum and economical use of financial and material resources. The popular belief is that the rate of progress is regulated by the magnitude of resources in terms of internal finance and foreign exchange. This is true, but only partly true. In actual fact the pace of the implementation of economic and social programmes is likely to be governed even more by the capabilities of the administrative and technical organisation. This view is supported by the fact that difficulties are being experienced by the various Central and Provincial agencies in utilising fully the budget allotments sanctioned for their programmes. The actual public investments often fall far short of the allotted grants. This phenomenon is attributable to a variety of administrative and technical shortcomings each of which operates as an impediment. It is the duty of the administration to organise resources, and to activate and use them so as to achieve maximum results in the shortest possible time at minimum expense. It must further, by its integrity and efficiency, inspire confidence among the people to secure their whole-hearted co-operation without which development in a democratic society cannot serve its full purpose nor can it acquire speed.

### Public administration requisites for development

5. The public administration requisites for the purposes of national development may be summarised as follows :

(*a*) A streamlined organisation, both at the Centre and in the Provinces, dividing the business of development into clearly demarcated and self-contained areas of responsibility and at the same time ensuring the fulfilment of the development mission as a whole.

(*b*) A central planning agency charged with the responsibility of (*i*) assessing the human and material resources of the country, and (*ii*) in collaboration with the various agencies responsible for development both at the Centre and in the Provinces, formulating national plans of development covering all social and economic fields, (*iii*) assessing and reviewing progress periodically and (*iv*) assisting the development agencies in removing their difficulties, and accelerating progress.

(*c*) Agencies in the Provinces to co-ordinate the planning and development work there, and to secure close collaboration between the central planning agency and the various provincial development agencies.

(*d*) Statutory public corporations and authorities charged with implementing special programmes requiring a commercial approach, or a multi-purpose approach in which the needed degree of co-ordination can be secured only under a special authority.

(*e*) A revitalised district administration directed to development.

(*f*) Democratically constituted local self-government institutions in the urban and rural areas, working in close co-operation with the governmental planning and development agencies.

(*g*) A rational system of financial administration which ensures the wise utilisation of the country's financial resources, and functions in such a manner as to promote development activities.

(*h*) Public service policies designed to maintain an efficient corps of workers.

(*i*) A progressive outlook on the part of the public service.

## ORGANISATION

### Basic requirements of organisation

6. What is involved in administrative organisation is the division of the business of administration among a number of units, each performing specified functions and all working together to achieve the common objective. The principal requisites of this process are following :

(*a*) A number of self-contained working units assigned clearly defined and functionally inter-related responsibilities with sufficient authority to discharge them ;

(*b*) Horizontal arrangement of the units into homogeneous groups looking after clearly demarcated and sizeable areas of administration with no gaps and no overlapping ;

(*c*) Vertical arrangement of the units and groups in a pyramidal scale of descending responsibility, with a straight line of command extending throughout, and with maximum delegation of authority to enable decisions to be taken within the framework of approved policy without constant reference to higher levels ; and

(*d*) Arrangements at the higher levels, especially at the top level, to ensure co-ordination and integration, both horizontally and vertically, and the fulfilment of the mission of public administration as a whole and in each of its branches.

### Organisational defects

7. Judged in the light of the requisites outlined above, it is generally agreed that the present administrative machinery for development both at the Centre and in the Provinces suffers from a number of shortcomings, briefly mentioned below :

(*a*) *Inadequacies of personnel.*—The development departments in the Provinces are, generally speaking, inadequately staffed, which restricts the expansion of their activities and the scope of the development work they can do. They are especially lacking in staff to prepare surveys and plans. In many cases the shortages are attributable to inadequate appreciation of the importance of development functions. Development departments are still given a relatively subordinated status, and their requirements receive insufficient recognition. The development departments at the Centre also suffer from shortages of staff and a serious lack of planning personnel.

(*b*) *Inadequacies of organisational structure.*—Both in the provinces and at the centre, the allocations of functions among operative departments and the grouping of the departments for purposes of administrative control are for the most part haphazard, being either a survival from the past or a result of political or administrative accidents.* Different aspects of one subject are often dealt with in different departments, and unrelated development departments are often lumped together under one Secretariat, department or ministry.

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**Note*—The word ' department ' is used here to describe what is known as an executive department as distinguished from a policy-making department, the latter being referred to as a " ministry " in the case of Central Government and as a " secretariat department " in the case of Provincial Governments.

Anomalous combinations of this kind do not make for strong and unified structures dealing with sizeable sectors of the public life, but on the contrary, create unnecessary strains and stresses and inner conflicts.

(*c*) *Unplanned changes.*—Frequent and unplanned changes in organisational combinations in the interests of political or administrative expediency, are similarly undesirable, since the process of adjustment necessitated retards progress. These changes are not a reflection of desirable flexibility in keeping with the dynamic nature of development, but are generally mere superficial changes in the superstructure which leave the basic structure unaffected. There is, indeed, a good deal of rigidity in the organisation.

(*d*) *Disparities of size.*—The ill-planned arrangements noted above often result in an inequitable distribution of burdens among ministries and secretariat departments and in vast differences in their sizes.

(*e*) *Belittling attitude towards development.*—There is an unavowed but nevertheless palpable attitude pervading the entire administrative *milieu* which regards development work as being of secondary importance. This attitude, which is irreconcilable with declared public policies, exhibits itself in the minor position generally accorded to development departments in the fields of both policy-making and executive action. They are generally treated as poor relations in the family of government organisations. This is a legacy from the past and tends to be perpetuated by the comparatively less advantageous emoluments and conditions of service of the personnel serving in most development departments, and is betokened by the fact that junior officers are generally appointed in the secretariat to deal with these departments. There are notable exceptions but the fact is a common feature easily discernible.

(*f*) *Absence or inadequacy of administrative organisations for certain development subjects.*—For some important development subjects either there is no administrative organisation or it is very inadequate. Some outstanding examples are : minerals development, inland water transport, survey and investigations for water and power development, and housing and settlements planning.

**Defective organisation aggravates problems of control and delegation.**

The fragmentation of responsibilities and proliferation of units aggravate the problems of control and delegation. The lines of command are seldom clear and straight, and the locus of control is often confused. The liberal delegation of authority which is necessary in order to impart mobility and effectiveness to the operative organs is made difficult by the unwillingness at higher levels to part with power and by the unwillingness of those at lower levels to use the powers delegated fully. The result is overcentralisation.

(*h*) *Defective Co-ordination.*—This over-centralisation is an ineffective and in fact a spurious form of co-ordination. It exhibits itself in time-consuming, energy-wasting, and patience-exhausting checks and counter-checks, references and cross-references, conferences and consultations, often at the wrong levels and about unimportant matters. Co-ordination in the true sense of unified administrative leadership at vital points is generally lacking. Apart from the pervasive financial controls, which have co-ordinative implications sometimes of a negative character, and the intrinsic responsibility of the Cabinet, such agencies as exist for general co-ordination do not perform this function in a comprehensive manner.

8. It is essential to overcome these defects and to improve the ability of the Government to carry out development work if the Plan is to succeed. At present, the organisational structures of the Central and Provincial Governments are necessarily being re-considered in the light of the new Constitution, and the situation is therefore somewhat fluid. We have not studied the general problem of government re-organisation, which is outside our terms of reference. In this and in other chapters, however, we propose a number of specific organisational improvements which are necessary for the implementation of the development Plan.

9. Some of the more important organisational problems discussed in other chapters are :

(*a*) Organisational arrangements for range management, soil conservation, colonisation, and agricultural research, in Chapter 14.

(*b*) Establishment of organisations for general surveys and investigations of water and power development, and of water and power development authorities, in Chapter 17.

(*c*) Organisational improvements in the fields of minerals development, in Chapter 19.

(*d*) Organisational improvements in the field of industrial development, including an organisation for assisting the fulfilment of plans for private industry, in Chapters 20, 21 and 22.

(*e*) Establishment of organisations for ocean shipping and for inland water transport, in Chapter 23.

(*f*) Development of housing and settlements planning agencies, in Chapter 25.

(*g*) Improvements in the organisation of Education, in Chapter 26.

(*h*) Improvement of organisations for labour welfare and the enforcement of labour legislation, in Chapter 27.

(*i*) Organisation of social welfare, in Chapter 29.

10. Many inquiries have been made in the past resulting in a number of recommendations for re-organisation. A fresh study is required, in the light of the schemes of distribution of powers between the Central and provincial Governments, as embodied in the recently promulgated Constitution. This study can be undertaken profitably after decisions are reached by the Government on the mannar and stages in which this scheme will be implemented. However, the following paragraphs contain a few proposals for re-organisation which in our view are exceedingly important for development.

### Ministry of Natural Resources

11. A Ministry of Natural Resources in the Central Government which would bring within one organisation the whole problem of the survey, exploitation, and use of natural resources for the maximum benefit of the nation would fill a real need. We draw attention to it in view of its special importance for a rational and co-ordinated development of national resources. Even for those categories of natural resources for which the Provincial Governments are responsible, we assume that the Central Government will continue to retain responsibility for co-ordination, guidance, leadership, general studies of problems, negotiation of foreign loans and aid, and their best utilisation.

(*a*) *Department of basic resources data.*—This department would collect reliable and comprehensive data about the location, volume, and characteristics of all natural resources by means of topographical mapping, geological surveys, hydrological surveys, meteorological information and capability surveys. The Survey of Pakistan and the Geological Survey of Pakistan should be merged in this department.

(*b*) *Department of mineral resources.*—The functions of the Department of Mineral Concessions, the Department of Explosives, the development functions of the Coal Commissioner, and the metallurgical and coal research functions of the Department of Scientific and Industrial Research should be transferred to this Department from the Ministry of Industries along with the technical and safety functions of the Chief Inspector of Mines in the Ministry of Labour. These functions should then be rearranged to form a coherent departmental pattern.

(*c*) *Department of water and power development.*—The necessity of water for many purposes—power, irrigation, salinity control, navigation, recreation, agriculture, industry, community use, etc.—underlines the necessity of integrated plans for its development and use. Power as a by-product of it and at the same time an important factor in its development is intimately connected with it. The two should be dealt with together by a single agency.

(*d*) *Department of land utilisation.*—There are vast areas of public lands, in the Central as well as in the Provincial domain, the proper allocation of which among different competing uses—agriculture, forestry, grazing, etc. calls for a single agency at the Centre responsible for preparing plans, programmes, and standards for their development and use all over the country, and the dissemination of information and ideas. This Department is proposed as such an agency. The operative functions would be performed by the Provinces except where the Federal Government is directly responsible.

### Ministry of Commerce and Industries

12. We recommend the amalgamation of the subjects of Commerce and Industry in one Ministry. With the formation of a Ministry of Natural Resources, the Ministry of Industries will be relieved of such departments as the Geological Survey, Central Engineering Authority, and the Coal Commissioner. Some of the departments now attached to the Ministry of Commerce can also be transferred to other Ministries, such as Shipping to the Ministry of Communications and Transport, and Insurance to the Ministry of Finance. The implementation of the Plan in the field of industry, including the planned utilisation of industrial capacity, would greatly depend on import licensing policies and procedures. The division of commerce and industry in two Ministries presents difficult problems of co-ordination, which would best resolved by their amalgamation in one Ministry.

### Re-organisation of ministries in provinces

13. The principles and objectives to be kept in mind in re-organising the ministries and departments are identical in the Centre and the Provinces. We feel even less sure about the pattern which would be most suitable for the Provincial Governments under the large measure of autonomy embodied in the Constitution. We have no doubt however that it would be desirable to establish a Department of natural resources. This department would be concerned with programmes, long-range and short-term, for the development of water and power resources, and for land management. In addition, therefore, to the existing Irrigation and Electricity Departments it should have under it a Department of Land utilisation. It would also deal with the affairs of the Water and Power Development Authority which we propose in Chapter 17.

14. Another department to which we attach the greatest importance is that of Local Self-Government. In the past the subject of local self-government has usually been attached to one of the Secretariat Departments concerned with some other subject which was regarded as its main responsibility. It has therefore had a subordinate position, seldom receiving sufficient attention, and local self-government suffered from neglect. This situation appears

to be beginning to change for the better, and we strongly support the tendency to establish in the Provincial Governments full-fledged Secretariat Departments for Local-Self Government.

## NATIONAL PLANNING ORGANISATION

15. The planning and execution of a national development programme is a process to which nearly every unit of government must contribute. Schemes and proposals should be prepared at every level of government from the village to the Centre and in every department and Ministry concerned with development. The schemes and proposals should be reviewed and co-ordinated into district, provincial, and national plans. Decisions must be reached and sanctions given for the execution of plans by operating organisations, and their work must be co-ordinated to achieve maximum results. The organisational arrangements for accomplishing these purposes will involve several elements : planning units in ministries and departments ; central and provincial planning organisations for review and co-ordination ; arrangements for reaching decisions and giving sanctions, and systematic procedures for co-ordinating execution, observing progress, and measuring results.

16. Later paragraphs discuss at some length the establishment of central and provincial planning organisations. We do not discuss at length questions of sanctioning schemes and co-ordinating their execution, as these matters are necessarily affected to some extent by the Constitution whose effects are not yet fully clear. The National Economic Council, established by the Constitution and composed of representatives at the highest level of the Central and Provincial Governments, will consider the primary planning and development problems of the country. This will affect the process followed till now for sanctioning schemes and co-ordinating their execution although the nature of the changes is not yet clear. The existing arrangements involve serious delays, but in some respects are good and effective. For example, it is clearly necessary to have definite and regular arrangements for discussion and consultation at the secretariat level, and such arrangements should be ensured under any new system. On the other hand it was generally agreed that in addition to the delays involved the previous arrangements had important defects, including the fact that schemes were generally presented for sanction in isolation without relation to a general development programme, or even to other schemes in the same sector. Considerable improvement is necessary to eliminate the bottlenecks and delays that frequently arise in the preparation, consideration and sanction of schemes. Authorities have to be designated at the highest levels in the Federal and Provincial Governments which should be approached for expediting the processes and resolving the difficulties that often hold up progress and lead to frustration. The occasion of establishing the working procedures of the National Economic Council and adopting the first national development plan should be used for a thorough review of the present situation.

### National and Provincial Planning

17. The essential purpose of national planning is to measure total resources in relation to total needs, to assess relative priorities and to propose targets and allocations of resources which will bring about the largest and most rapid results possible. A national plan is composed of subordinate plans to be fulfilled by the various government and private agencies. But these subordinate plans cannot result in the most rapid possible progress for the country unless they are harmonised and fitted together by national planning. A series of individual plans, no matter how carefully prepared, in absence of national planning, must result in serious conflicts, cross purposes, gaps and delays.

18. National and provincial planning are both necessary ; each complements and strengthens the other. Clearly, no national plan can be effective unless it takes account of the desires and capabilities of the Provincial Governments and their plans are integrated

with the national plan. Equally clearly, the Provinces need national planning in order that the maximum progress can be made for all the people of the country. Provincial resources—financial, material, and human—are unevenly distributed. It is one of the functions of national planning to redress imbalances in resources by distributing them all over the country and among different purposes in a rational manner, so as not to concentrate the benefits of development in one area or among one group, but instead to spread them widely and provide for the maximum possible progress for everyone. Furthermore, provincial resources are only a part of the total of national resources. There are many resources which cannot be attributed to a Province and belong to the nation as a whole. Foreign loans and aid are an outstanding example, but are only one of many. Moreover, the country's resources cannot be brought into use fully without action in the central field. The Central controls several subjects of vital importance in mobilising and using resources, such as currency, foreign exchange loans, banking, exports and imports, shipping and insurance. Development has to be planned with reference to available markets, and sectional planning would be based on smaller sizes of producing and consuming areas, and render many projects uneconomic. For all these reasons, provincial plans must be integral parts of a national plan and must conform with its objectives, techniques, and priorities, in order to achieve maximum results in the shortest time in terms of the welfare of all the people of the country.

19. The necessity for a central agency for planning seems to be beyond question, and has been recognised in all countries where national policies are directed towards a rapid and balanced development of resources. This agency cannot be a department, because no department could have a status adequate to the overriding importance of the assignment. Similarly, a subject-matter ministry is out of the question by reason of its preoccupation with its own duties, and the danger of conscious or unconscious partisanship to which it must be exposed. Even a special ministry responsible solely for planning would not be in a strong position for purposes of co-ordinating economic policy and development. It would be burdened with administrative and executive responsibilities and not therefore wholly free to perform its essential functions of research, analysis, advice, and co-ordination. As a ministry it would tend to be drawn into current political controversies which would impair its utility and effectiveness as a body of technical experts, particularly in the context of a federal structure of government.

20. The planning agency should in short be an agency consisting of experts without responsibility for executing policies or programmes but enjoying a high prestige by virtue of its competence and impartial position and outlook. It should be accorded the highest position in the counsels of government in order to make its advice effective. It would then be in an effective position to enable the Government to co-ordinate economic policies and to direct planning and development activities. We recommend that the planning agency should be attached to the Prime Minister, through whom it should report to the Cabinet or the National Economic Council, as may be decided by the Government.

21. Planning is a continuing process and does not come to an end with the formulation and promulgation of a Five Year Plan. It must go on ceaselessly to take account of unforeseen circumstances, unfulfilled expectations, unforeseen shortages and surpluses, new and more complete information and statistics, and a host of forces, some released by the plan itself and some lying outside it. Subject to the priorities and objectives of the plan being preserved, a reasonable measure of flexibility is necessary. Amendments, adjustments, and improvements must be made to achieve the purposes of the plan where facts have altered. But changes in the plan should not be made by the implementing agencies on their own responsibility or in a haphazard way. They should be made on the advice of the planning agency after full consideration. Also the first five-year plan will merge

into a second plan and the second into a third : the nation has to think in terms of a continuing series of development plans. All countries which have embarked on development have found it necessary to maintain a central planning agency on a permanent basis.

22. The central planning agency should be assigned the following major responsibilities :

(*a*) Development planning : to prepare, in consultation with Central Ministries, Provinces, and private bodies, national plans of economic and social development at periodic intervals. The present five-year Plan is the first of these. This Plan after necessary approval should be an authoritative guide for all agencies of the Central and Provincial Governments, and departures from it should only be permitted for good and sufficient reasons, determined in consultation with the central planning agency.

(*b*) Assistance in carrying out development plans : to advise public and private agencies in executing development schemes and projects ; to help in overcoming shortages and other difficulties ; to stimulate, and where necessary to initiate, the preparation of schemes needed to carry out the national plan; and in general to help in any way possible in carrying out the five-year plan. The planning organisation should not consider itself nor should it be considered by other to be an executive agency ; at the same time it will naturally be deeply concerned with the progress of execution of the plan, and it must put its knowledge of the total situation at the disposal of the executive agencies, and guide and help them in every way it can to accomplish the objectives of the plan.

(*c*) Project examination : to examine schemes, programmes, and proposals submitted for review. The Planning Board has examined several hundred schemes in the course of drawing up the first five-year plan ; those it has approved need not be re-examined by the successor planning organisation. In a number of cases, however, schemes still need to be prepared to carry out provisions made in the plan, and in other cases, substantial revisions will need to be made in previously prepared schemes. Such new or substantially revised schemes should be examined by the planning organisation before they are put into execution. As time goes by, the planning organisation should encourage government and private agencies to think in terms of *programmes*.—that is, of integrated sets of schemes in pursuance of desired targets—rather than of individual *schemes* by themselves. It is to be hoped that the proposals submitted for subsequent plans can be primarily in the form of programmes.

(*d*) Review and appraisal of development : to conduct a continuous review of progress made in carrying out the national plan ; and to appraise results in terms of the benefits achieved. The central planning agency will need to establish formal procedures for obtaining information on a regular schedule. In addition, periodic visits and inspections will need to be made in collaboration with other agencies concerned. Regular periodic reports should be made to government and to the public.

(*e*) Annual programme determination : to work closely with the Central Ministry of Finance in preparing the annual development programme for inclusion in the Budget. The development budget in effect will constitute the annual instalment of the national plan in the public sector.

(*f*) Programming of foreign aid : to work closely with the Ministry of Finance in preparing programmes for the best use of foreign aid and loans. The central planning agency will be in a position to judge where foreign aid and loans can be most effective in terms of national requirements and the priorities of the national plan. The detailed planning and execution of projects using foreign aid or loans would of course continue to be the responsibility of the Central Ministries and Provinces concerned.

(*g*) Economic appraisal : to maintain a continuous review of the economic situation in the country, the effectiveness of its economic policies, and the impact of the development programme. Accurate and reliable indicators of economic trends and sound analysis of their meaning are the necessary foundation for sound decisions on economic policies and development plans. The central planning agency should make periodic reports to the Government on the size of the development programme warranted in the light of the available resources, the economic effects of development projects, and similar matters.

(*k*) Stimulating research and investigations : to encourage the expansion and improvement of the activities which must underlie sound planning : research, statistics, surveys and investigations, evaluation, etc. The central planning agency should feel a special responsibility to promote these activities in all important fields and to help the agencies concerned to establish well-thought-out programmes directed towards definite objectives.

23. Close and co-operative relations between the central planning agency and the Ministry of Finance are essential to the success of the planning effort. This is true especially in connection with the preparation of the annual development budget, which in effect is a statement of the public sector development programme for the ensuing year. Both the planning agency and the Ministry are concerned that the development programme should be as large and as effective as possible. In general the planning agency will be concerned with the objectives, priorities, and expected benefits of proposed expenditures, and the Ministry with administrative feasibility, cost estimates, and availability of funds, but the important point is that the two agencies must work together for best results. We should not be interpreted to suggest that co-ordination between the planning agency and the Ministry of Finance would be necessary only on certain occasions during a year. Close and continuous collaboration will be necessary not only in preparing budgets but also in formulating programmes for foreign aid and loans, in appraising the progress of development projects and in many other matters.

24. The preparation of programmes and schemes in the different economic and social fields should be the responsibility of the administrative ministries concerned ; for this purpose each ministry should have a planning unit free to devote its whole time to the task. It should be one of the duties of the central planning agency to encourage effective planning in the ministries, and to give them help and guidance. The planning agency should aim at reaching a point where its own efforts will be mainly directed towards correlating the ministries' plans, scrutinising them for consistency with each other and with the national plan, and relating them to the total availability of resources.

25. Planning development being a co-operative nation-wide activity, the Central and Provincial Governments must endeavour to enlist the fullest support and co-operation of the people. The central planning agency can assist in the following ways :

(*a*) By constituting committees representative of business, industrial, and financial institutions, the technical professions, universities, the co-operative movement, social welfare organisations and the like, and of eminent individuals in different fields for consultation on different aspects of the national plan ;

(*b*) By criculating draft plans and programmes widely among representative organisations and associations, including the press, for eliciting comment ;

(*c*) By publishing popular versions of the plan, in Urdu and Bengali as well as in English, and making them available at a low price to encourage wide circulation ; and

(*d*) By publishing progress and appraisal reports on the implementation of the plan from time to time.

## PROVINCIAL PLANNING ORGANISATIONS

26. Each Province must have an organisation for the co-ordination of planning and development. From the point of view of principle the most satisfactory form of organisation seems to be that of East Pakistan, the main components of which are :

(*a*) A Cabinet Development Committee with the Chief Minister as Chairman and Ministers as Members ;

(*b*) A Development Board with the Chief Secretary as Chairman, the Development Commissioner as Secretary, and the Secretaries of development Ministries as Members ;

(*c*) A Planning Department, which acts as the Secretariat of the Development Board ; and

(*d*) A whole-time development Commissioner, an officer of the rank of Divisional Commissioner, who in his capacity as Secretary of the Planning Department, also acts as the Secretary of the Development Board.

The major deficiency in this organisation hitherto has been the lack of qualified staff in the Planning Department, which should act as the central research and analysis staff on development matters for the Development Board and the Provincial Government. This staff need not be large, but it must be of high quality and be competent to provide the same general range of technical and economic advice as the staff of the central planning agency.

27. The planning organisations in the several West Pakistan provinces and states were in general less than satisfactory. The Development Commissioner was frequently responsible for one or more other departments, which left him little time for planning and development, and he had inadequate secretariat staff and no technical or economic advice available to him. He was not therefore able to make any real contribution to economic and development planning, co-ordination, review, or appraisal. We think that in principle the East Pakistan organisation constitutes a suitable pattern for the Provincial planning organisation of West Pakistan. It should be adequately staffed, fully supported, and its functions clearly specified. The Development Commissioner should be a whole-time officer engaged solely on the co-ordination of planning and development. He should have a status and authority signifying to all ranks and branches of the administration and to the public the overriding importance of development. The maintenance of law and order is of high importance, but we believe that by now it is recognised that development is not of lesser importance. We consider that either the Chief Secretary or the next senior officer should be the Development Commissioner of the Province. In the latter case he should be given the rank of Additional Chief Secretary. We suggest that the choice between the Chief Secretary and Additional Chief Secretary for the assignment of planning functions should depend on their personal inclinations and aptitudes. We must emphasise that development would not receive adequate recognition and attention unless it is ranked at least equal to law and order, and not accorded a junior status to be regarded with comparative unconcern, as was the position in most of the units in West Pakistan before their integration into one Province. The Development Commissioner should have a voice in

the postings, transfers, promotions, etc. of senior officers so that the needs of development are not overlooked. He should preside over a co-ordinating development committee at the official level and act as Secretary to the Cabinet Development Committee. The Planning or Development Department of which he should be the Secretary should belong to the portfolio of the Chief Minister or the Finance Minister, both of whom perform co-ordinating functions.

28. The Development Commissioner's department should be different from the ordinary secretariat departments in that its staff should consist largely of experts. It will not be easy to build such a department and the shortage of experienced people will be a serious limitation. A beginning must, however, be made, and the organisation built up as opportunities become available. We suggest that immediately, the Development Commissioner should have some Pakistani and foreign economists to assist him. The Provincial Statistical Office should be attached to the Planning Department, with its Director as one of the staff officers of the Development Commissioner.

29. The Planning or Development Department should function as the advisory staff and secretariat of both the Development Board and the Cabinet Development Committee. It should have a suitable but small secretariat staff for general duties. It should maintain the closest relations with the central planning agency and act as economic staff of the Provincial Government. Subject to necessary modifications, its duties in relation to the Province would be similar to those of the central planning agency's in relation to the Central Government. They will develop gradually as the staff becomes available and experience is acquired. Senior officers employed in development departments such as those of agriculture, industry, and irrigation, should in the early stages be *ex-officio* officers of the Planning Department. This would be the best means of effecting co-ordination, spreading knowledge about the techniques of planning, and of making maximum use of available personnel. The formulation of detailed sector plans must remain the responsibility of subject-matter departments. Each such department should therefore build a small planning staff definitely set apart for this purpose.

### Village AID

30. While it is not desirable to assign to the Planning or Development Department any direct operating responsibilities, since such an arrangement would interfere with its essentially neutral " staff " functions, an exception seems to be warranted in the case of the Village AID programme, in view of the fact that it is a co-ordination programme in itself and cuts across departmental frontiers. It must therefore itself be in a neutral position and not dominated by any one department. The opinion of international experts in the field of social welfare seems to be that Village AID should be attached to the Ministry of Social Welfare, because its programme is aimed at community development. But there is no well-developed Social Welfare Ministry or Department which could adequately develop Village AID programme. We think also that in the earlier years Village AID has to face serious problems of departmental adjustment and co-ordination with which the Development Commissioner will be best fitted to deal. Moreover, Village AID is multi-purpose in character and effects a synthesis of all rural development and welfare programmes. It is therefore peculiarly fitted for being placed in a neutral position. We accordingly recommend that the administrative responsibility for the Village AID programme should vest in the Planning or Development Department. This can best be done by appointing the Director of Village AID as Deputy Development Commissioner, with the status of Joint or Deputy Secretary in that capacity. By this means it will be possible to ensure day-to-day co-ordination between policy and execution in an activity which is a representative cross-section of the whole field of planned development, and from which many lessons likely to be useful in other spheres can be learnt.

## PUBLIC CORPORATIONS AND AUTHORITIES

31. There is a growing tendency in favour of employing semi-autonomous statutory public corporations for special tasks. We hold that ordinary departmental agencies should give place to public corporations or authorities for the management of commercial undertakings, or where smooth and rapid progress needs a high degree of co-ordinated management under a multi-purpose authority, such as the development of water and power resources.

### Governmental control

32. The Government cannot divest itself of responsibility for such corporations and authorities ; the main problem is how to exercise control sufficient to ensure public accountability and conformity with public policies, without affecting the operational flexibility essential to successful business management. In general the relationship between the statutory bodies and the Government should be established on the analogy of that between the management of a joint-stock company and the general body of its shareholders, the responsibilities of the shareholders being interpreted in an active sense and in their fullest scope. The Minister should have the power :

(*a*) To appoint the Chairman, and key officers at the top, as well as Directors, except to the extent they are elected ;

(*b*) To give general directions in matters affecting the national interest and on broad questions of policy ;

(*c*) To accord previous approval to all capital programmes, market borrowings, and allocations of profits ;

(*d*) To appoint auditors ; and

(*e*) To call for periodical or special reports for the due discharge of his responsibilities, and to order an inquiry into the affairs of a statutory body in special circumstances.

33. The Legislature should have an opportunity of discussing the working of a statutory body at the time of :

(*a*) Making budget grants, whether original or supplementary ;

(*b*) Considering the annual accounts ; and

(*c*) Considering the annual report on working which should be submitted formally to the Legislature.

34. The Board of Directors should consist of persons selected for their personal qualifications, such as broad business or administrative experience, who are capable of acting independently in their individual capacities. In order to avoid overlapping of responsibilities, divided loyalties, and extraneous influences, *ex-officio* departmental representatives, ministers, members of the legislature, representatives of interests and persons having an interest in any connected business should be excluded. We recognise that due to the paucity of eligible men the condition about *ex-officio* departmental representatives and persons having an interest in any connected business may be difficult to fulfil. We must however keep it as our goal, and make exceptions only in unavoidable circumstances. The Government would be well advised to consider the organisation of a small cadre of specially qualified and trained men who would specialise in business management and act as directors in the various concerns in which the Government are interested. The number and operational fields of such concerns will extend as the economic programme expands. The Government will find it increasingly difficult to arrange for a satisfactory discharge of its

responsibilities for the efficient management of such concerns. The development of a special body of experts qualified in business management, some of them specialising in particular branches, is deserving of consideration.

35. Boards of Directors generally operate in one of two ways : either (a) as policy boards, consisting mostly of part-time members, dealing collectively with the business of the statutory body, mostly in the sphere of policy, or (b) as functional boards, consisting of whole-time members, who individually take executive charge of particular branches of the business.

36. Subject to availability, whole-time directors should be appointed in preference to part-time ones. In the case of functional boards all directors have to be whole-time ; but even in the case of policy boards there should be a suitable proportion of whole-time directors. The chairman or managing director in either case must be whole-time. The salaries of directors, especially those working whole-time, should be high enough to attract the best qualified persons from different walks of life. Their initial tenure should be from three to five years. Their appointments should be staggered so as to ensure continuity of policy and administration.

37. The internal management should be left entirely in the hands of the Boards of Directors. Government intervention is warranted only when the Board of Directors fail to function properly and efficiently. The Government are responsible to ensure that abuse and maladministration do not occur, and that the operations of the Board are in conformity with approved policies and programmes. The Board will fail if the Government fail to exercise the necessary supervision or allow an unsuitable chairman or managing director to continue for too long, or allow interference by their own officials in its working. The powers which we have suggested for retention by the Government are adequate to enable them to perform their responsibility, but their full exercise without overstepping the limits is a matter for constant watchfulness and careful judgement.

## Re-organisation of District Administration

38. The basic geographical unit of administration is the revenue district, and the officer in charge of the revenue district is the district officer *dar excellence*. He is the Government's principal representative in his area in the eyes of the people, not only because he embodies in himself the Government's authority in the spheres of law and order and revenue, but also because he is regarded as generally responsible for the well-being of the people. It is through him that the Government maintain contacts with the people. His effectiveness began to decline long before independence, but he still enjoys a great deal of prestige and authority. He is directly or indirectly connected with all activities of government in his district, and is available to all departments of the Government. One of his principal responsibilities besides law and order and revenue, is the supervision, and at times administration, of local self-government institutions. He is the most important link in the long official chain stretching from the villager to the Central Cabinet. The institution of district officer is important from the points of view of unity of administration, public relations, and local self-government, and has great potentialities for the purposes of development. He must continue to perform his important traditional functions but he must increasingly reflect the role of responsibility for the welfare of the people which the Government assumed. In working for his objective we should keep the following factors in mind :

(*a*) For a number of years district officers have been more than ever pre-occupied with the problems of rehabilitating refugees, administering evacuee property, food procurement and distribution, and controls over essential commodities, with frequent visits of ministers and other dignitaries to organise as well.

(*b*) Barring a few outstanding exceptions, there has been a noticeable deterioration in the quality of district personnel, owing to the general shortage of mature and experienced administrators, made more acute by withdrawals to the secretariat.

(*c*) There have been too frequent transfers of district officers with consequent lack of continuity of administration.

(*d*) A tendency has been growing to bring the district officer less and less into development planning, as a result of development departments becoming more and more independent and conscious of their own importance. It is only when the district officer's intervention becomes unavoidable that he is approached. The effectiveness of district officers and the unity of district administration has been impaired by the growing size and importance of individual departments, each anxious to emphasise its own entity.

39. It is imperative to make full use of the district officer as the chief agent of the Government in its relations with the people. The activities of all development departments need to be co-ordinated to achieve the desired results in terms of the welfare of the people. Co-ordination at Provincial headquarters can be valuable only if it leads to co-ordination at the field level. There is no better or more effective agency for the latter than the district officer. The first step to be taken in this direction is to support the district officer by releiving him of formal and routine functions. He should be able to function as the head of District administration with an overall responsibility extending to the entire area of the relations of the Government with the people. In some districts additional district magistrates and revenue assistants are a recognised part of the district machinery. This should become a universal practice. In the larger districts, in addition to these officers, the appointment of an additional deputy commissioner or additional collector who can share the district officer's general responsibility may also be warranted.

40. On the positive side it is necessary to invest the district officer with a measure of authority over the units of the various development departments in his district. We suggest that the various units, while remaining fully under the administrative and technical control of their respective departments, should be placed under the operational and supervisory control of the district officer. This arrangement would not undermine or curtail the authority of individual departments, but would ensure the active promotion and successful fulfilment of their respective programmes as a unified whole for the maximum benefit of the people. Thus, in service matters, *e.g.*, recruitment, posting, transfer, promotion, and leave, the officers serving in these units would remain under their own departments. The district officer should however be consulted before any orders are passed, at least in regard to gazetted officers. Similarly in technical matters—such as work techniques and programme approval—the officers would remain under their own departments. The district officer would be responsible for directing, assisting and supervising them to the extent necessary for implementing the sanctioned programmes according to schedule. He should also be required to record his opinion in the annual confidential reports of gazetted officers of development departments about their efficiency in this limited but important respect.

41. The administrative pattern we are suggesting would not be easy to realise, but we have no doubt that the unity and integrity of district administration under the control and guidance of district officers is essential for the fulfilment of development plans. It will be achieved by a consistent effort over a period of years, as officers acquire experience and understanding grows. For some years it would be difficult to find experienced officers in all cases either as district officers or as their assistants. But above all a high degree of understanding and co-ordination is needed among the various departments operating in the District for the welfare of the people. Success will ultimately depend on the extent of co-operation and co-ordination which the Development Commissioner is able to establish with other departments at the Provincial level. The success achieved at that level will

travel downward and permeate all ranks in course of time. A great deal would also depend on the manner in which the district officer acquits himself in using his authority. His duty would be to provide leadership, guidance and help instead of imposing authority in an arbitrary manner.

### Village AID

42. One of the principal concerns of the district officer in the development field will be the Village AID programme. Organisational arrangements for implementing this programme have been suggested in Chapter 13. It will be necessary to link them in with the rest of the district officer's development co-ordination activities. In fact, they can very well serve as the basic framework. In particular, the advisory bodies at different levels suggested for the Village AID programme can be useful as agencies for general development co-ordination.

### District development officer

43. For the due performance of the development co-ordination functions described above it will ultimately be necessary for the district officer to have a whole-time assistant in addition to the officers suggested in paragraph 39 to provide him with relief from his other duties. This assistant should be designated District Development Officer, should have the status of an additional district magistrate, should not be recruited from any particular service, and should be chosen by virtue of special qualifications and aptitude for development work.

### Divisional commissioners

44. In West Pakistan, the divisional commissioner is intended to exercise wide powers of supervision and control over the working of all departments in his division. He will thus perform co-ordinating functions at a higher level and over a larger geographical area. This is likely to strengthen district administration in the performance of its development functions, besides contributing towards the translation of provincial plans into regional ones, into which district plans can be fitted. The implications of this new arrangement will be revealed fully in course of time, but there seems no doubt that it will tend to strengthen the district administration, and improve the machine for establishing and maintaining the relations of the administration with the people on a basis of understanding and co-operation.

### Decentralisation of planning

45. At present, plans for development are prepared at the Provincial and Federal headquarters, and nearly all decisions are taken at these levels, especially at the latter. we consider that the Government should visualise an active process of decentralisation. Instead of being prepared and imposed from above, programmes, in particular in the sphere of rural development should originate in the villages and proceed upward so that their aggregate should represent the needs, aspirations, and thinking of the people. Centralised direction of planning is inconsistent with the requirements of a democratic society, and a process of decentralisation is needed to secure the participation of the people. Planning in a free society must be based on a general consciousness of social purpose, so that the people should treat the plan as their own, intended for their benefit. They should be able to have a sense of participation, and to extend their full support and co-operation in its fulfilment.. Without the whole-hearted participation of the people, the plan will not achieve its full proportions ; progress will be slow, and its benefits will remain open to question. The extension of bureaucratic administration and control will confront the country with the perils of authoritarianism implicit in over-centralisation.

46. It should be one of the primary functions of the district administration to initiate and promote the participation of villagers in the process of planning. Their wishes and aspirations should increasingly influence the implementation of the plan ; an opportunity has been provided by the Village AID programme. Progress in this direction should be made rapidly so as to enable the Government to make subsequent plans on this secure foundation.

## LOCAL SELF-GOVERNMENT

47. The local self-governing bodies that Pakistan has inherited from undivided India did not grow spontaneously out of the public life of the sub-continent. They were grafted upon certain early executive experiments performed by district officers in building up civic amenities with officially enlisted help. The legislation that brought them into existence was, therefore, based upon the assumption that they would need a good deal of official control and guidance. It provided for far-reaching executive controls directed to efficiency, and the principal objective was to make progress in the provision of local amenities—roads, schools, dispensaries, waterworks, sewerage systems, etc. The result was that, so long as official chairman and nominated members managed the affairs of local bodies, a considerable amount of useful work was done. But when, partly under the pressure of the growing popular demand and partly owing to the increased pre-occupation of the district authorities with their other duties, official participation was withdrawn, local bodies found themselves unprepared to shoulder the tasks of civic management, grown to large proportions in the context of the social and economic progress that had been going on in the meantime. The unfortunate thing was that, the withdrawal of official participation, there was a rapid relaxation of official supervision as well. Instead of constructive guidance, recourse was freely taken, on the one hand, to supersession and, on the other, to withdrawal of functions. These trends, which characterised the administration of local self-government for some years before partition have continued in Pakistan. We feel strongly that the need for developing local self-governing institutions should be recognised by the Federal and Provincial Governments in clear and unequivocal terms. The tendency, which is all too apparent, of curtailing the scope of the functions of local bodies should be effectively checked. The extension of bureaucratic control will tend to kill initiative, inhibit leadership, and prevent self-help enterprise among men and women all over the country. We have noticed trend to transfer educational, health and animal husbandry institutions from local bodies direct government management. Even if government departments are able to operate them efficiently, this would be little compensation for the set-back to the development of democratic values in our society. The approach must be one of guiding and helping the local bodies so as to make them effective instruments of administrative and social work, and not one of curtailing their scope and crippling them for the sake of efficiency.

48. The lack of confidence in local bodies displayed by the Provincial Governments in frequently superseding them and in withdrawing functions from them shakes their self-confidence as well as public confidence in them. This is a blow to the progress of democracy which must be avoided even at some temporary cost in administrative efficiency. The circumstances which justify such an extreme step must be the result of continuing mal-administration, for which the representatives of the Government cannot disclaim responsibility. The district officers and commissioners exercise powers which should enable them to intervene when the signs of abuse and mal-administration appear without waiting until a serious situation developes. The district officer or the commissioner should exercise powers to issue directives and to set aside decisions which involve palpable injustices or clear abuse of power. The knowledge that they will not hesitate to exercise such power will exercise a salutary check on the administration of local bodies, and render the exercise of that power largely unnecessary.

49. The working of local self-governing bodies, especially in regard to finance and conditions of service for their employees, should be made the subject matter of an inquiry, the object of which should be to suggest measures for improvement. Mal-administration is due to two main causes : the relatively low standards in the matter of qualifications, training, and experience of the holders of key posts, and the interference by the members in day-to-day administration, frequently motivated by personal or factional considerations. We suggest that the possibilities of provincialising all key posts should be explored. The Provincial Governments should maintain cadres of such officers as secretaries or executive officers, municipal engineers, public health officers assessors of properties, accounts officers, and the like, retaining in their own hands powers of appointment, training, posting, promotion, and transfer. Another measure which would help would be to define the powers of key officers, to prevent interference by the members in matters which should not concern them. The members would then have to devote themselves to policies and programmes and their implementation, as well as with the prevention of above and Mal-administration. It can be hoped that they would then concern themselves more with the due and punctual fulfilment of the duties assigned to the officers. We believe that by some such measures, favourable conditions would be introduced for the development of local self-governing institutions in the country.

50. There are other causes also which contribute to the inefficiency of the institutions run by local bodies, such as the inadequacy of funds and the inability of government departments to accord equal treatment to the institutions of local bodies in the distribution of limited supplies of drugs and equipment on a basis of equality with those run by the Government direct. This is due to the failure to recognise that the institutions of local bodies are entitled to be regarded as national institutions in the same way as government schools and dispensaries.

51. It is necessary to develop the financial resources of the local bodies to enable them to perform their functions effectively. This would be achieved partly by improvements in the machinery for assessment and collection of taxes, particularly property taxes. In the chapter of Financial Resources we make recommendations for the development of property taxes, which should form an important and growing source of revenue for local bodies. The formation of a provincial cadre of property tax officers which we have proposed is a necessary condition for the proper assessment and collection of property taxes.

52. We have earlier emphasised the need for establishing a separate department in each Provincial Secretariat for dealing with the subject of local self-government. We suggest the following measures for establishing closer co-operation between the Governments and local bodies :

(a) District officers and district heads of the development departments should revive the practice of frequently inspecting the local bodies' institutions and works, and send inspection notes to the local bodies for their guidance. This should also be done at the sub-divisional level.

(b) While reviewing the local bodies' budgets, the district officer should invite the comments of the development departments on their proposals, in order to ensure that they fit in with general policies and programmes.

(c) The local bodies should be represented on the development advisory bodies to be set up in the district at different levels. This is particularly important in the sphere of Village AID.

(d) Provincial Governments should utilise to the maximum extent the agency of local bodies for implementing their social service programmes, such as primary and secondary schools, public health schemes, rural dispensaries, veterinary centres, urban community development centres, and institutes for the handicapped.

53. It should be clearly recognised that local self-governing bodies are an important part of the administrative structure of a democratic society. They exist in their own right, and must be supported to the fullest extent.

**Rural self-government**

54. The only self-governing bodies for villages are union boards in East Pakistan, which serve groups of about ten to fifteen villages on an average, and village *panchayats* in the Punjab. The former, though they have some useful work to their credit in providing certain elementary rural amenities, do not reach down to the individual village, and have also shown signs of deterioration in recent years. The latter have been mostly preoccupied with the judicial functions entrusted to them. The revival of the ancient institution of village *panchayats* should be one of the principal tasks of the proposed departments of Local Self-Government in the Provincial Secretariat of West Pakistan. It will be necessary to revise the legislation governing village *panchayats*, so as to utilise them as multi-purpose organisations for executive, judicial, and development purposes. In the early stages they can be made responsible in the field of development for the smaller tasks like sanitation, village roads, drainage, community buildings, and drinking water. As they get experience they should take upon themselves larger responsibilities like framing village development programmes, preparing budgets of requirements of supplies and finance, assisting in land improvement and land reform, and implementing schemes of development.

55. We attach the greatest importance to the development of village self-government. The nation lives mainly in villages, and the people there must learn to deal with their problems in co-operation. Along with co-operatives, village *panchayats* provide the institutional framework for the expression of self-help and the organised functioning of social and economic life in a democratic framework. We think that the Village AID programme will not make a full and lasting impression unless village *panchayats* and co-operative societies are developed to take over and continue the work initiated by it.

## BUDGET CONTROL IN RELATION TO DEVELOPMENT

56. A sound budget system is indispensable to good development administration. It can assure a wise allocation of resources among alternative demands, keep expenditures within resources, and follow execution to see that proposed plans and programmes are actually carried out faithfully to the original purpose. Budgeting involves not only the negative function of control ; properly used, it becomes the instrument by which and through which a national objective can be achieved. A good budget staff is not only alert to the consequences of over-expenditure ; it should be equally concerned with implementation and with the effective performance of approved work programmes.

57. At present, multiple checks are exercised to assure control within available finances, and to curb expenditure irregularities, both of which are essential objectives. But they tend to operate as obstructions to development progress. The system of expenditure sanction following budget allotments, and additional clearance required in certain cases before actual expenditure, serve a good purpose, but the needs of the development programme render it necessary that they should be modified. These procedural requirements tend to retard the programme at great cost, which is real even if invisible. Delays in the progress of programmes are far more costly in material and moral values than the possible additional expenditure which would be caused temporarily by large delegations of authority. The present system places excessive confidence in the efficacy of control at the top level, and by agencies above and outside those responsible for programme implementation.

There is urgent need for giving recognition to the management principle that respect for financial considerations to be effective must be injected at every significant level of administration in any organisation responsible for expending public funds.

58. The system of requiring a further sanction before actual commitment or expenditure of budgeted funds has the following results :

(a) It tends to reduce the integrity of the annual budget ; the *ad hoc* judgements implicit in the operations of the sanction procedure negate the careful planning that presumably enters into the construction of the original budget ; frequently it leads to the inclusion of funds in the budget for schemes which have not matured ;

(b) It tends to substitute bargaining and haggling in the sanction period for rational consideration of relative merit of programmes at the time of budget formulation ;

(c) The time lags incident to negotiating sanctions sometimes get projects out of phase. Thus sanction approvals often bear no relationship to building seasons, causing substantial losses in engineering time and deterioration of materials. This applies with special force in East Pakistan where the working season is very short ;

(d) Whatever the principles embodied in the rules, the responsibility for achieving the objectives of financial control and regularity comes to be regarded as residing in the Ministry of Finance, and in its agencies. This creates only an illusion of tight control. It cannot constitute effective control because the point of decision on details is removed by long hierachical and usually geographical distances from the point of expenditure. This results in a shifting of responsibility from the man who should really be accountable to someone usually hidden in anonymity in the central staff; and

(e) It creates large amounts of barren paper work, particularly in the Ministry of Finance.

59. With limited resources and large developmental and other needs, the budget system has to be tough in its review. Every demand must be subjected to the most thoroughgoing and critical evaluation before being included in the budget. There should be no automatic theory or easy route for any budget request no matter of how long standing or what its historical precedent. The time to be tough and thorough is in the period when the budget is being formulated. The appropriations resulting from the annual budget process should serve as the authoritative basis for the programmes and policies in the ensuing year. The budget should be regarded and utilised as the greatest single control instrument of the entire financial system. Accordingly, the budget should not be diluted either by faulty or indifferent estimating, or by extensive subsequent adjustments. Insistence on subsequent sanction processes tends to impair the authority of the budget. The most crucial decision in the process of financial control is not the bargaining over specific amounts needed for a project, but the basic decision whether to undertake the proposed activity as a government programme by inclusion in the budget. This means that the practices both of including immature schemes in the demands for grants and of inserting items for which there is no real intention of granting sanction should be stopped or subjected to such rigid standards as to reduce them to a rarity. All factors and information relevant to budget examination should be available at the time of budget formulation, and final decisions made at that time. The Ministry of Finance should insist that all requisite information be submitted promptly, in order to allow adequate time for consideration and should refuse to accept immature schemes " in principle". If the original data are inadequate it is not possible to judge the wisdom of the proposed expenditure in the first instance ; and it is never sound to include an item in the budget till the cost-benefit ratio has been exhaustively explored.

60. While it is true that central controls tend to retard the progress of programmes, it is equally true that the development ministries and departments have not always demonstrated competence in estimating expenses and in appraising their activities in cost terms. Frequently they are not adequately staffed for this purpose. Under the current procedures there has been little incentive for them to assume a higher sense of fiscal responsibility, nor have they been furnished with the necessary tools. Because of the weakness of budget estimates submitted by the ministries and departments, the Finance Ministry has thought it necessary to probe ever deeper into the details of estimates, and to rely on the sanction procedure as a further check on expenditure. As a result, operating agencies tend to shed themselves of further responsibility. Anything which is approved by the Finance Ministry is accepted as sound ; the skill lies in obtaining their approval. The result must be exaggerated demands from the ministries and indiscriminate budget cutting by the Ministry of Finance, with bargaining and haggling substituted for the sober consideration of proposals. The remedy is two-fold. First, as discussed elsewhere the ministries and departments must be provided with improved and strengthened staffs which will see that a better job of budgeting is done from the initiating levels upto the Ministry. The Finance Ministry should offer its assistance in the process of upgrading this work. Secondly the Finance Ministry must foster a deeper sense of fiscal responsibility in the operating agencies by insisting on higher standards of budgeting. Instead of simply cutting the budgets arbitrarily, which is always easy, the Finance Ministry should try to achieve a partnership basis with those responsible for the programme, to determine how and where reductions must be made. The two parties must reach a basis of complete and open frankness about the realities of programme needs instead of dealing with each other at arm's length. Good budgeting is possible only with co-operation between the budget control agency and those responsible for the operations.

61. The question of how existing operations can be carried out at minimum cost can be answered best at the lowest responsible level concerned with the particular operation. Any other judgment is second best and can only contribute factors beyond the scope of the operator. This by no means minimises the need for review and controls at successive levels above the operator. But such controls must be increasingly in broader terms and in more general amounts as higher levels of supervision are reached. Like the planning functions, financial control is successful in achieving its purpose only if financial responsibility is built into operations at all levels. The principal cure for this situation is to strengthen the facilities for budgeting and accounting in both ministries and departments. There should be a responsible officer with necessary training in financial control in each ministry and in each major department. He should be responsible to his senior officers in the executive ministries, instead of being an officer of the Ministry of Finance. This will keep loyalties and the lines of responsibility clear. A Financial Adviser attached to a ministry or department fulfils a different purpose. The objective should be the elimination of the sanction procedure and greater reliance on the annual budget process, supplemented by a periodical allotment and system of controlling the rate of expenditure during the year. This will take some time to achieve. In the meantime measures are necessary looking towards improved control and greater operating flexibility with executive ministries. However, the assurance of economy in administration is not only a matter of accounting records and prior sanctions to expenditure. It is also and fundamentally a state of mind, an awareness on the part of all elements in the administrative process of the need for saving every rupee wherever possible. The responsibility of watching rupees and annas is much too great for the small staffs in the Ministries of Finance. They must enlist the full cooperation of, and inculcate a greater economy consciousness in, the people who are actually performing the services and spending the money. They alone can erect effective safeguards against extravagance. All this means that administrators responsible for expenditure control must take a personal interest in the subject, and consider themselves personally accountable for observing prescribed rules as well as budget limits. They should not consider

accounting and budgetary matters as something which only warrants the attention of their clerks. It is not necessary for an administrator to be a trained accountant to understand financial realities. What is required is a deep sense of public trust, an acute sense that he is spending public monies, and a willingness to devote some personal time to the budget control function.

62. Practically every report on administration in the sub-continent prepared over the last 10 years has treated the subject of delegations of financial powers. The Tottenham Report of 1946, the Ayyangar Report in India of 1949, the Gorwala Report in India of 1951, the Appleby and Egger Report in 1953, as well as to some extent the Administrative Inquiry Committee's 1953 Report all urge that the ministries be permitted to exercise greater financial powers. The delegations of authority contained in the Book of Financial Powers need to be reviewed. The power of re-appropriation and transfer between items within demands has already been widely delegated to the several ministries. It is also understood that the Ministry of Finance has now raised the general delegations to pre-partition levels. This is all to the good, but these delegations need to go much further. The goal should be the elimination of all or most of the restrictions calling for clearance by categories of expense. While these delegations may have to be progressive, the objective should be the virtual elimination of the authorisation procedure, with reliance for detailed financial control placed on some kind of a quarterly allotment procedure which would regulate the rate of expenditure through the year. The system of account keeping in the ministries as well as in the accounts offices will have to be improved considerably to achieve this objective.

## REVIEW AND ADJUSTMENT OF ORGANISATION AND PROCEDURE

63. It must be recognised that change and adjustment will be periodically necessary to meet shifts in the contents of programmes, and to take advantage of more efficient procedures and time saving techniques. Governmental management is not a static thing ; dynamic public administration calls for a readiness to adapt organisations and procedures to new conditions and, therefore, requires the existence of a permanent machinery to follow through on essential changes. Good management needs budgetary and financial controls, but they do not dispense with the need for a continuous improvement of the operating and administrative machinery of government.

64. A significant gap in public administration at both Central and Provincial levels is the absence of any specialised staff devoting sustained and expert attention to the broad problems of structure, functional assignments, management methods, and work procedures. One of the principal reasons why many proposals and ideas for improvement have not been adopted and vigorously pursued is that there are no institutionalised facilities manned by competent men specialising in administrative management in the Centre and Provinces to give continuous drive to this work. It is true that an Organisation and Methods Unit has been created in the Establishment Division of the Cabinet Secretariat. This has undertaken some studies leading to recommendations concerning the receipt and issue function in various ministries as well as some other procedural subjects largely dealing with routines. Its progress has been slow, because of lack of trained personnel. However, the greatest short-coming of the O & M Unit arises from the fact that its mission is narrowly conceived and in practice it tends to be concerned with subjects on the periphery of administrative management. What is needed is a new and greatly strengthened unit which is directed to function in the whole field of government organisation, administrative management and basic operating procedures. The proper assignment of functions, the division of work between Centre and Provinces, and the streamlining of administrative procedures should all be the subjects of intensive and continuous study and investigation. To this

end we recommend that there be created a new Division of Organisation and Management at the Centre. We further recommend that the Provinces follow suit, as they are equally in need of such management services.

65. We recommend that this new Division of Organisation and Management should be located in the Ministry of Finance where it can operate in association with and as a complementary activity to the processes of financial review and control. This Ministry is the central control arm of the Government ; extension of its scope to cover the field of organisation and procedures is a natural and functionally sound development. Furthermore, the Ministry has an obligation to promote administrative methods that will lead to economy. The location of this new Division in Finance would produce to reciprocal benefits. First the broad approach and general administrative interest of this unit would operate to raise the management and administrative outlook of the financial review units. It would help the Ministry in its efforts to achieve a more positive approach to management, and instil the concept that better organisation and procedures are the foundation for more efficient and therefore more economical administration. The association of the budget control function with the management group will also lend an element of authority to the function of improving administration. While the recommendations of the management group should be able to stand on their own merits, they will gain in authority from association with budgetary and financial powers. The head of the new Division should be on a parallel with the Chief of the other Divisions in the Ministry and should be given equal personal and official status. The senior staff should be largely recruited from the all Pakistan and Central services. While most of these people have had little training and experience in this field of management and organisation analysis, with their general government background they should learn very quickly, provided proper selections are made. In addition to the staff equipped to think in broad organisational terms there should be at least one constructive accountant, one or more " system" expert, and one expert in labour saving equipment. Some of these may well require overseas training before being ready to operate. The existing O & M Unit should be transferred to and consolidated with this Division.

66. It will be the broad function of this group to give systematic, extensive, and intensive attention to the organisational and administrative problems of government with particular emphasis on development activities, since it is in this area where present deficiencies can be most harmful. More specifically the Division should :

(a) Conduct special studies and surveys of the several ministries with a view to rationalising their organisation and functional assignments ;

(b) Study and make recommendations on all inter-relationships and jurisdictional issues between departments and ministries ;

(c) Conduct government-wide surveys of common administrative and housekeeping services, with a view to their more efficient performance ;

(d) Simplify administrative and operating procedures, develop work measurement standards, and make studies of work flow and methods in the interest of reducing paper routines and files; and

(e) Prepare or clear and co-ordinate all orders of Government and administrative regulations dealing with management and organisational subjects.

67. The long-term task of the new Division should be the rationalisation of the organisation structure. There are, however, immediate requirements at the Centre which be given the highest urgency in view of current impediments to development. Some of these are :

(a) Short-cutting secretariat procedures ;

(b) Working out broader delegations of authority ;

(c) Simplifying fiscal procedures ;

(d) Studying the public works and procurement functions ; and

(e) Simplifying and rationalising the whole field of export and import controls, customs, and currency control.

This constitutes by no means an exhaustive list of important problems but these should command priority attention.

## PUBLIC SERVICE POLICIES AND THEIR ADMINISTRATION

68. Under item (iv) of its Terms of Reference the Planning Board is required to make recommendations for changes in the public administration which are necessary to assure the implementation of the National Development Plan. The Plan is intended to be comprehensive, and will need the participation of all public servants directly or indirectly in its implementation The policies of the Government in relation to public services and their administration are in general of intimate consequence to the successful implementation of development plans. We visualise planning and development as the most important continuing activity of the Federal and Provincial Governments, and have therefore thought it necessary to deal with the problems of public services which are responsible for executing government policies and programmes.

## THE CIVIL SERVICE OF PAKISTAN AND OTHER NON-TECHNICAL CENTRAL SUPERIOR SERVICES

69. The dominant feature of public service polices is the administrative leadership of the Civil Service of Pakistan, a body of general administrators which provides not only the executive officers in the districts and the heads of some of the departments, but also the policy advisers to the Central and Provincial Governments. Originating in the necessity for a uniform system of law and order and revenue administration over the whole of the Indian sub-continent as a symbol of its political unity under British rule, the scope of its command extended gradually with the expansion of the Government's sphere of activities. But its own evolution—the increase of its cadre strength, the improvement of its methods of recruitment, training, posting, and promotion, and most important of all, the reorientation of its outlook—has not kept pace with the enlargement of its responsibilities. This disparity has come to the fore since independence with the emergence of development as the Government's supreme task.

70. That a permanent civil service is indispensable to the type of democratic government Pakistan has chosen does not in our view, admit of serious challenge. In his own domain the administrator is as much an expert as the technician is in his. His proficieny in the dynamics of human relations and his gift of objective appraisal of situations correspond to the special knowledge and skill of the technician ; they are no less important for the purposes of the community. True of the higher civil service in any democracy, this applies with greater force to the Civil Service of Pakistan by virtue of the background of practical field experience in the districts and departments that it brings to the task of policy making in the secretariat.

71. This does not mean that the technician should not be associated with policy formation or that officers of the civil service have a monopoly of administrative talent. We have elsewhere emphasised the close inter-dependence of execution and policy formation. A civil service provides men who have been trained for dealing with general administrative

tasks concerned with human relations, money, and organisation, and must have a high place in the counsels of Government. If the Civil Service of Pakistan is to occupy its position usefully and effectively in the new setting, it must undergo a series of reforms designed to make it broader-based, numerically stronger, less entrenched and self-regulating more varied in talent, deeper in knowledge, and, last but not least, wider in outlook. In what follows, the more important of the necessary measures of reform are indicated. Though they primarily address themselves to the Civil Service of Pakistan, some of them apply, either by implication or, with variations, directly, to the other cadres and classes of the public service.

72. Besides the Civil Service of Pakistan, there are a number of Central Superior Services of a general and non-technical character, such as Police, Audit and Accounts, Customs, Income Tax, and Central Excise, which are separated from the Civil Service of Pakistan and each other by artificial walls built around existing cadres, each having its own scales of pay and prospects of promotion. Their separation from each other is artificial for several reasons. In the first place, recruitment to them is made through a combined competitive examination requiring a similar educational background. In the second place, the work involved in the various services is equally non-technical in the sense that it does not require academic qualifications of a technical kind, such as those necessary in the case of, say, doctors and engineers. Training is given to the recruits after entry into service, mostly on-the-job ; and they learn their work as they go along. From the point of view of general education and educability, apart from special personal aptitudes, all successful candidates are *prima facie* equally suitable for all services. In the third place, several accidental factors affect their assignment to one service or another, like their relative positions in order of merit, their personal options, the ranking of the services *inter se*, the number of posts to be filled in the various services in particular years and provincial and communal quotas. The combination of these factors can easily result in wrong selections from the point of view of temperamental suitability. In the fourth place, the ranking of the services *inter se* is open to question. Whatever the facts of administrative history behind it, this ranking does not seem to have much justification for its continuance. There is nothing inherent in the subjects handled by the respective services which makes any service superior to those ranked below it. Mere volume or diversity is not a correct criterion. Again, if any posts or any kind of work in any of the services call for differential emoluments, this should not confer a higher status upon the service as a whole.

73. The existence of so many services of a general character as discrete entities divides the total general work of the Government into water-tight compartments, militates against the pooling of administrative resources, encourages class-consciousness and mutual jealousies creates conflicts in many common areas of administration, and prevents the maximum utilisation of talents in accordance with aptitudes and emotional pulls, to mention only a few of the evils resulting from it.

74. These reasons justify the combination of the non-technical Central Superior Services into a single civil service. The existing services should be converted into branches of this combined civil service, all having identical scales of pay, prospects of promotion and leave retirement and pension rules with protection, of course, for the established rights of existing incumbents. Even if they continue to be separately designated by their present names, they should not be treated as independent and self-contained cadres. In other words, they should be treated as if they were branches of a single civil service.

75. Posts of a common service nature, posts requiring all-round experience and proficiency, posts involving administrative leadership or high-level co-ordination, such as those at present generally occupied by senior members of the Civil Service of Pakistan, should be reserved for a common pool constituted on the model of the Finance and Commerce

Pool. It may be useful to have two sections of this pool, one for the higher executive posts, and the other for the higher secretariat posts. The pay-scales of posts belonging to the pool should be higher than those of posts in the various branches. The pool will thus constitute a new *elite corps* of senior officers and administrative leaders different from the present one in that it will be composed of elements drawn from various sources, contributing manifold types of talent and experience. After officers are drawn into the pool they will begin to be trained as specialists in administration and will add depth to the width of experience they bring with them from their earlier backgrounds.

## RECRUITMENT

76. Recruitment should be through a competitive examination as at present. The minimum and maximum age limits for the examination are at present different in the case of the Civil Service of Pakistan from those for the other services. Uniform age limits will obviouly have to be prescribed. In the course of doing so, the question of widening the age range, and especially of raising the maximum limit, may be considered. A proposal has occasionally made for relaxing the provision prescribing a university degree. This is premature in the present conditions of Pakistan, and will create more problems than it will solve. The results of the examination and interviews should be supplemented by modern methods characterised by various tests and measurements to judge the suitability of candidates for the careers for which they are being recruited. The possibilities of holding one joint examination not only for general services centralised by the Federal Government but for all such services including those centralised by the Provincial Governments should be explored. It would bring about a welcome saving of time, effort, and expense without prejudicing the requirements of any government service.

77. The course at the Civil Service Academy, which all selected candidates should go through, must cover the general requirements of the various branches of the new service. It should give a comprehensive background of the entire range of activities of the service in an integrated manner, and not try to impart intensive instruction on the activities of any particular branch. The course should include the principles and methods of public administration, with special emphasis on planning and development and social welfare activities, and liberal instruction in the social sciences necessary for the new type of administrator, such as economics, sociology, social psychology, and political science. These disciplines largely impinge on each other, and it should be possible to evolve a combined course comprising a synthesis of their essentials instead of giving piecemeal instruction in them, except perhaps for economics, which in view of its special importance should be taught as a separate subject. A possible addition of a useful nature is some practical work in the field, such as taking part in the economic and social surveys.

78. The purpose of the training should be not only to prepare the trainees for the new civil services as a whole but also to determine the relative measure of their suitability for the different branches of the service so that, as far as possible, each trainee may be assigned to the branch for which he is most suitable. In course of time, when specialist staff is available for this purpose, there should in addition be regular observation and recording of the intellectual and emotional traits of the candidates with reference to the nature of the work in each branch, supported by aptitude tests, performed from time to time with the help of job analysis of a general character.

79. The results of the three operations—the entrance examination, observation, and aptitude tests—should be placed before a selection board consisting of very senior officers, each representing a branch of the combined civil service, and a member of the Pakistan Public Service Commission. The selection board would recommend the assignment of the probationers to the various branches of the service, and as a rule its recommendations should be accepted by the appointing authorities.

80. After their assignment to the various branches, the entrants should go through a course of departmental training, the purpose of which should be to impart to them a practical acquaintance with the departmental procedures and rules and regulations, along with an insight into the *rationale* behind them. This should be followed by a written examination to test not only their knowledge, but also their understanding of the significance and implications of the departmental practices and norms. The whole idea should be to find out if they have acquired a knowledge of the inner workings of the department as a collective mind, and not merely as a mindless machine. Not until they have passed this test should they be confirmed in the service, and given their first responsible job.

81. Three or four years after they take charge of their first responsible post, a re-appraisal should be made of their suitability for the particular branches to which they have been assigned, by means of modern performance rating system, which would be a considerable improvement upon the periodical confidential reports in vogue at present which tend to be subjective, over-simplified, and often superficial.

82. In the light of the performance rating reports, it should be decided whether the officers should be given advancement to a higher grade, detained for some time more in the initial grade, or transferred to other branches for which they appear to be more suitable. This process should be repeated after another four or five years for the purpose of deciding upon further advancement or transfer. In the case of outstanding officers likely to prove suitable for the pool of higher posts mentioned in para. 75 above, it may be useful to effect transfers at earlier stages and more frequently, in order to give them a wide background of experience preparatory to their being selected for the pool.

83. The final appointment of officers in the various branches, except for those selected for the pool, should be somewhere around the tenth or twelfth year of service. Until then there should be little hesitation in inter-branch transfers. Specialisation is undoubtedly necessary ; but it should begin only after an officer has proved his suitability for it in a particular field of work, especially if it implies life-long assignment to that field. No stigma should be attached to inter-branch transfers.

84. All this would involve the determination of grades in the various branches corresponding to the testing periods mentioned above and the equalisation of grades and prospects of promotion as between the various branches. An exception to this should be the range of posts belonging to the pool, which, as already suggested, should be accorded differential treatment so as to provide special advancement opportunities for the higher order of talents.

85. Annual increments and promotions to higher grades in the ordinary course in accordance with seniority and normal performances are undoubtedly indispensable as a general incentive, and in order to meet the gradually increasing financial needs of the officers as they advance in years. But promotions after a certain stage, and to posts carrying special responsibilities, emoluments, and further openings should invariably be on the basis of merit, judged by a performance rating system, and not merely by the superficial impressions recorded in confidential reports. Seniority should also receive consideration, but only as a secondary factor.

86. The general advantage of the integration proposed above will be twofold. On the one hand, there will be an increase in the supply of general administrators with a broad sweep of the field of public administration, and integrated outlook, and a common *esprit de corps*. In view of the ever increasing tasks of development, which are covering more and more fields of public administration, there will be need in the years to come for a larger supply than is at present available of administrators who can take charge of development

administration as a whole, and provide the necessary leadership, co-ordination, and motivation. On the other hand, within the framework of this liberal administrative culture there will be increased opportunities of specialisation in different sectors of public administration in harmony with innate talents and individual aptitudes. Because the two classes of administrators—the generalists and the specialists—will be members of the same fraternity, the chances of friction between them, which generally arise from departmentalism and false service loyalties, will be minimised.

**The technical services**

87. Along with administrators of the new type, a modern state devoted to programmes of social and economic development needs a strong corps of technical experts working in conditions which are favourable for the full exercise and development of their talents. The technician has not yet received the recognition due to him in the public administration of the country. He does not occupy the same status in policy formulation as a general administrator, but this is no reason why this should carry with it a generally disadvantageous position in terms of pay, prospects, and official ranking. This invidious distinction leads to heart-burning and frustration, and to the diversion of some of the talented technicians to non-technical jobs. Equality of treatment should be brought about between the technical and non-technical services as resources permit, class by class, grade by grade, and post by post. The association of the technician more closely with the general administrator in policy formulation and decision making will help to eliminate the sense of inferiority and frustration from which the technician is apt to suffer. In addition, technicians who show special talent for administration should be eligible for promotion to the pool of administrative leaders which we have recommended above (para. 75). They will bring new knowledge and aptitudes to the pool and add to its strength.

88. We should point out that in all countries which have made rapid economic and industrial progress in recent history scientists and technologists have been conceded special recognition. They are often the highest paid employees of the state sometimes occupying key positions. This is only a recognition of the fact that the problems of a modern administration are overwhelmingly scientific and technical. With the problem of economic and industrial development, the demand for scientists and technicians will expand and their market value will increase. Unless they are accorded proper status and emoluments they will not be able to give of their best to the state and tensions within the service ranks will grow.

89. Integration of the central superior technical services on the lines suggested in the case of the non-technical services is not practicable, because assignment after joint post-recruitment training and inter-service transfers are not possible. We recommend, however, that not only in the matter of scales of pay, but also in regard to prospects of promotion and conditions of service, maximum equality should be achieved between the technical and non-technical services and among the former themselves.

90. A gap in the administrative arrangements which should be filled as soon as resources permit is the absence of an administrative staff college to provide refresher courses in public administration or in particular aspects of it to officers at intermediate levels of the higher services. Such an institution can also usefully serve industry and business, which in Pakistan suffer greatly from lack of administrative skill.

91. In order to stimulate interest in public administration as a subject of study and research in political, administrative, professional and academic circles, it is necessary to establish a subsidised but autonomous Institute of Public Administration. Its scope should include business administration. It should publish a journal, hold seminars and conferences, encourage research by the universities, maintain liaison with similar institutes abroad

and with universities interested in the subject, obtain literature from them, and have a circulating library and a reading-room.

92. The universities should be encouraged to start courses in public administration either independently or in conjunction with subjects like political science, sociology, and business administration. Public administration should also be included among the optional subjects prescribed for competitive examinations, especially the Central Superior Services examination.

93. If possible there should be more frequent deputation of officers to the Administrative Staff College at Henley than at present. They should also be sent on study tours to advanced countries to study the systems of their public administration. A good idea would be to select a senior officer and depute him to a few countries—like the United States, the United Kingdom, France, and Germany—to make a comparative study which will enable him better to appreciate the problems in Pakistan. This would be a useful supplement to the studies of Pakistan's public administration made by experts from abroad, and in some ways be likely to make a greater impact on our administration.

94. The formal practice of granting officers study leave to go abroad for further study, which seems to have fallen into desuetude, should be revived. The modern state does not need only men and women mechanically efficient in their jobs ; it also needs people with advanced learning in various subjects, including the humanities and social sciences.

**Integrity**

95. There is a widespread feeling in the country that the standard of integrity has deteriorated in recent years ; this feeling is shared by the public services themselves. The country has been passing through revolutionary conditions, and it is a mistake to view the present period of its history as a mere continuation of the pre-partition period. After centuries of neglect, suppression, and disorganisation, the nation has acquired the freedom to re-organise and rebuild its social, economic and political life. The former standards were in a way imposed from without, while in freedom the moral and social forces of the community alone will sustain high standards of integrity. Large demands of a new character have to be met by the public services in the era of planned development which the country has entered. They have to work for defined goals which cannot be achieved without winning the confidence and co-operation of the common people. Direct responsibility for development and the achievement of its goals will introduce favourable conditions for the promotion of higher standards of integrity. The work of public servants will acquire a deeper solicitude for the welfare of the people. This would be a powerful influence in stimulating a purposive devotion to duty, which will promote honesty of outlook and intergrity of character.

96. While we do not dispute the view that the standards of integrity and efficiency have shown deterioration in recent years, we nevertheless think that the structure and system of public administration inherited from British rule has served the nation well. The period since independence has been characterised by political and economic crises but in spite of the small number of experienced officers, the public services have a magnificent record of achievement and deserve well of the country. We believe that a movement for reform will manifest itself when the administration begins to apply its energies to the programmes of development. It is necessary to encourage and support this movement by a judicious application of incentives and disincentives. A more aggressive policy than is being followed now is called for.

97. As regards incentives, what is needed is something more than the merely passive recognition of honesty as a desirable virtue. Means should be developed to give positive rewards in a demonstrative manner for honest work done, especially in positions involving the exercise of large powers and wide discretion. Sometimes such positions, besides offering temptations, carry with them a good deal of odium and strenuous work, which must be given special recognition. Only officers known for their integrity should be selected for such posts. This will be an initial reward in the shape of open recognition, which will inspire them with courage and confidence. On the successful completion of their tenure, the officers should be so treated as to make it clear that they are being further rewarded for honest work. Honesty will thus come to be regarded as a positive virtue and a dividend-paying personal asset. Officers with high standards of integrity are generally self-effacing, and it is the duty of the administration to discover them and save them from unfair competition from less competent careerists.

98. Short of positive punishments for dishonesty, ranging from dismissal to reprimand, for which there is provision in the disciplinary rules, an effective deterrent, easier of application, is the denial of posts carrying special responsibility, authority, and distinction to officers whose reputation for honesty is open to doubt. We also feel that severe departmental action against superior officers in some particularly bad cases will be more effective than attempts to bring all petty offenders to book. While justice is an important end, the objective must be to bring about a general improvement as rapidly as possible and not to attempt the impracticable task of punishing all public servants who are suspected or accused justly or unjustly of dishonesty. The processes for achieving the latter end can cause immense harm by killing initiative and creating a general tendency to work for safety. In the present climate there is also the danger that in an undiscriminating campaign it is the small unprotected man or the honest man who, untroubled by consciousness of guilt, is apt to be careless and unattached to groups, and will suffer more than the guilty man.

99. The procedure for departmental inquiries into charges of corruption, inefficiency, and indiscipline, is heavily weighted in favour of public servants and, besides being long-drawn-out, often proves ineffectual. While there is need for guarding individuals against arbitrary or capricious action, there is need for removing loopholes and delays. There is a general reluctance to initiate inquiries, to pursue them to a finish, or to report matters to higher authority. In particular, the old practice of taking to court allegations made in the press against officers should be revived, special judges being appointed when necessary.

100. Corruption thrives where there is failure to enforce compliance with rules and regulations, to watch expeditious disposal of cases and to ensure proper dealings with the public. In our view it is not impracticable to devise administrative measures for an independent review of the disposal of business to prevent delays. Improvement in this respect will go far to sterilise the soil in which corruption thrives, and to inspire confidence among the people. Repeated delays should be treated as a good ground for severe disciplinary measures amounting to dismissal.

101. We must also emphasise that the standards as exemplified in the outlook and methods of political leaders must exercise a profound influence on the integrity of public servants. The public services are the instrument of the nation, functioning through its political leaders, for carrying out public policies, and must therefore reflect in their outlook and conduct the standards set before them. This is particularly so because our public services have not had the benefit of leadership from senior officers of ripe experience in the difficult conditions through which the country has been passing. Their number was extremely small, and the position was aggravated by the willing and unwilling employment of public servants in personal and party struggles for power. This phase will pass when the new Constitution begins to work fully and its influence is felt in the political life of the country.

102. Integrity is not confined to matters of money alone, and must be interpreted in a wider sense. The lack of a sincere and honest approach towards the problems of public business whether in matters of money or of appointments, postings and promotions, of distribution of contracts or licences, or other forms of advantage to individuals, must lead to disastrous and far-reaching results, extending over the whole area of public administration. The people are entitled to expect high standards from the public services, but lasting improvement will be possible only when general standards of leadership rise to higher levels. This depends on the development of the strong and alert public opinion necessary for exercising supervision over political parties and their leaders. We have every reason to expect that stable political conditions under an accepted constitution, along with a development programme throughout the towns and villages of the country will pave the way for improvement.

## PUBLIC SERVICE COMMISSIONS

103. The basic function of public service management is to secure for public servants, on the one hand, fair dealing in accordance with their rights and merits, and for the Government, on the other hand, the best return for public funds spent on them. The fulfilment of this objective requires a vigilant effort to maintain a delicate balance with a clear appreciation of the issues of public welfare involved. It needs an impartial and highly-placed body free from both political interference and bureaucratic control and capable of making fair dispensations between the Government and public servants, as also among public servants themselves. No government department can fairly be cast in this role. Being a direct participant in the business of the Government, it cannot be free from the risk of political interference. Nor can it avoid the charge of partiality in inter-service matters, since its personnel must belong to one service or another. Moreover, public service management by the members of public services is likely to be characterised by inadequate appreciation of the urgency for change, adjustment, and reform which are needed to meet the rising needs of technical and social change.

104. The Public Service Commissions do not occupy a position of effective command over the field of public service management. The functions of both the Federal Commission and the Provincial Commissions are at present confined to (*a*) conducting examinations for recruitment to the central and provincial services, respectively, and (b) giving advice on specified matters, such as methods of recruitment to services and posts the principles to be followed in making appointments to services and posts, promotions and transfers from one service to another, suitability of candidates, disciplinary matters, claims for reimbursement of costs of legal proceedings, or any other matter referred to them by the President or the Governor, as the case may be. Even within their limited jurisdiction the Public Service Commissions are often handicapped by unclear or conflicting policies followed by the government departments having parallel jurisdiction, and by the absence of co-ordinated policies covering the public service as a whole. The Public Service Commissions were not called upon to provide any leadership, nor was there any other agency capable of doing so.

105. In the context of modern government, public service management is a large activity with many facets. It involves not only selection, recruitment, postings, transfers, promotions, preservation of service rights, and disciplinary matters—the orthodox functions of the Public Service Commissions of Pakistan—but also education, training, classification of services and posts, fixation of emoluments, posts and services, inter-service relations, preservation and improvement of morale, provision of good working conditions, redress of grievances, welfare, and many other things having a bearing on the maintenance of the public service as a contented, well-knit, and efficient corps. All of them are so closely interconnected that the entrustment of them to different agencies at the top

level of advice, policy-making, or implementation must adversely affect the fulfilment of the assignment as a whole. This assignment can appropriately be entrusted to suitably organised Public Service Commissions even though only in an advisory capacity.

106. In this perspective, it is necessary to reorganise the Public Service Commissions in respect of their composition and the scope of their functions. The membership of both the Federal Commission and the Provincial Commissions should be expanded so as to enable them to cope with their increased responsibilities. The sources from which the chairman and members are drawn should be diversified to the maximum extent, to provide representation of broad public interests. Their terms of office should be staggered to ensure continuity of policy. The chairman should have direct access to the Prime Minister or the Provincial Chief Minister, as the case may be.

107. The functions of the Commissions would fall into two broad divisions : (1) recruitment and other establishment matters and (2) education and training. In the sphere of recruitment and establishment matters the main tasks will be :

(*a*) Exploring and developing the recruitment field in collaboration with the educational authorities.

(*b*) Improving recruitment policies and techniques, in particular by introducing modern methods of judging suitability.

(*c*) Forward planning of the personnel requirements of the various services and departments, and devising means of meeting them.

(*d*) Rationalising the organisation, pay structures, and terms and conditions of employment of the public services.

(*e*) Simplifying and codifying rules and regulations, directives, and instructions bearing on service matters. The rules governing the conditions of service of public servants are voluminous and complicated, requiring large establishments for their administration ; their simplification is overdue.

(*f*) Introducing job-analysis and performance-rating techniques.

(*g*) Improving disciplinary procedures.

(*h*) Devising means of redressing public servants' grievances, maintaining their morale, providing good working conditions for them, and promoting their welfare.

(*i*) Maintaining standing lists of approved candidates to meet urgent requirements, particularly in categories for which suitable candidates are known to be scarce.

108. This last task is of special significance to development programmes. The progress of development is retarded by delays in the recruitment of technical men : it must be the special aim of the Public Service Commissions to eliminate such delays. Special principles and procedures are urgently required to meet the needs of a dynamic situation : unless the Public Service Commissions think and act constructively and fit themselves into that situation attempts will be made, with good reasons, to by-pass them. They should improve their procedures in such a way as to avoid the need for making appointments without consulting them. At present appointments can be made for a period of one year direct by the departments without consulting the Public Service Commissions. This is a very unsatisfactory method of making appointments, particularly if they are likely to last for long periods. They lead to commitments, even if formally denied, which are inconsistent with the need to maintain high and objective standards in recruitment. They are probably the most prolific source of abuse in recruitment. The Civil Service Commissions in the U.K. observe sample procedures for assisting the ministries in making urgent appointments ; ways and means should be explored of simplifying the procedures of recruitment particulary in those categories of occupation in which the possible candidates are

known to be very few, for instance, the holding of examinations or the issue of advertisements to meet individual requisitions for engineers and technicians, particularly in specialised categories involves needless effort, expense and time. It is a paradox that while government departments are short of men, well qualified men cannot secure suitable employment. The task of recruitment needs to be re-organised as an assignment requiring imagination rather than application of mechanical rules.

109. The post-entry training, education, efficiency, upgrading, and specialisation of public servants should be dealt with comprehensively by the re-organised Public Service Commissions so as to ensure uniform policies and programmes throughout the service. The Commissions should also maintain, liaison with the universities and educational authorities, with a view to assist in making the educational system meet the needs of the public service.

110. The Commissions will need additional administrative and technical staff for discharging their expanded responsibilities, such as psychologists, job analysts, and performance rating experts, directors of training and education, and an inspectorate. We believe that the Commissions could with advantage seek the assistance of technical aid agencies to provide them with consultants and advisers.

111. The Commissions must guard against the danger of centralisation and preoccupation with responsibilities of a minor character, at the expense of their major responsibilities. They must make wide delegations of their functions to governmental agencies subject to supervision, inspection, revision of orders, and recall of delegated powers.

**Immediate measures**

112. It will take some time to consider and give effect to the changes outlined here. We suggest immediate action on the following lines :

(*a*) The proposed system of assigning successful candidates to the various Superior Civil Services on the conclusion of the combined course at the Civil Service Academy can be introduced without combining the various services into a single Civil Service.

(*b*) A committee, consisting of a member of the Pakistan Public Service Commission, a member of each of the Provincial Commissions, and two or three experienced administrators, should be appointed to examine other questions, and to make such interim recommendations of a general character as can be adopted pending the rationalisation of the whole personnel administration system by the re-organised Public Service Commissions. The question of strengthening the Commissions should also be considered by this Committee.

(*c*) The scope of the functions of the existing Public Service Commissions should be widened as far as possible, by reducing the number and extent of the matters withdrawn from their jurisdiction by the Consultation Regulations. They should, for example, be associated with the work of the Establishment Division and of its counterpart in the Provinces, particularly with the work of the Central Selection Board and the Departmental Promotion Committees.

(*d*) A Director of Education and Training should be appointed, to begin with, in the Federal Public Service Commissions and, later in the Provincial Commissions, in order to formulate a programme for setting up a proper organisation for education and training.

## The outlook of public services

113. No amount of improvement in the mechanics of public administration, its structure, organisation and procedures, and in the skills of its workers—will enable it to achieve the desired goal unless there is a change in the outlook of the public service. The right outlook is to the public service what imagination is to an artist or faith to a missionary : it is its guiding light. While conscious of the deterioration that has taken place since partition, we are of the opinion that the public services of Pakistan have their share of the attributes of a true public service—devotion to duty, observance of discipline, respect for rules and regulations, loyalty to the Government by law established, and efficiency in the performance of assigned tasks. But, when all is said and done, these virtues are of a passive character, representing the absolute minimum. What is needed to make the public service an effective instrument for the creative enterprise of social and economic development is the dynamism springing from a progressive outlook, and an unfailing faith in the destiny of Pakistan.

114. The ingredients of a progressive outlook on the intellectual plan are : readiness to accept new social ideas, responsiveness to new urges of the nation, preparedness to learn and try new techniques of human relations, including those applicable to the art of public administration, eagerness to understand the human implications and consequences of official acts, willingness to profit by criticism, a self-critical and introspective attitude and several other allied traits. On the moral side they can be summed up in an unremitting endeavour to make the public service true to its name. The public service in this country occupies a very high position, in the hierarchy of professions by reason of the power, prestige, and privileges that it enjoys, and the vast range of responsibilities—practically spanning the entire life of the community—vesting in it. It owes to society and to itself the duty of living up to its high position by making itself as useful as possible. It can do so in many ways—by being constantly alive to the needs and problems, of the people, by establishing an identity of aims and interests with them, by meeting them on equal terms, by trying to win their confidence, respect and willing co-operation, by having a faith in the mission to improve and enrich their lives, by being prepared to renounce privileges and status so as to share in any sacrifices that they may be called upon to make, by giving up its aloofness and shedding its notions of superiority—in short, by establishing a living human fellowship with the people.

115. It can be hoped that the actual performance of the tasks of development will engender the requisite intellectual and moral qualities in the public service ; but the process must be consciously and purposively assisted and accelerated. There is no magic formula for bringing about the kind of transformation that is called for. The basic requirement is a self-reforming effort on the part of the public service itself. But this effort must be helped by public service policies in matters like recruitment, postrecruitment, training, promotions and appointments to key posts. These policies must put a definite premium upon the creation, utilisation, and encouragement of qualities of a progressive order. The rest is a matter for statesmanship, which must guide and inspire by example and precept.

## Chapter 7

# STATISTICS

## INTRODUCTORY

1. We cannot too strongly emphasise the importance of developing reliable statistics. They are a basic requirement for the formulation of social and economic policies, for the preparation of a national development programme, and for an appraisal of the results achieved. They are also a basic requirement for efficient administration, and for forecasting future availabilities and requirements in various fields. They are equally important for such private decisions as those on investment, marketing and prices.

2. We are deeply conscious of the serious deficiencies in statistical data in the country. In the course of preparing the five-year Plan, we frequently found ourselves in the position of having to arrive at decisions when the necessary data on which such decisions should have been based were either lacking or were incomplete or unreliable. We had no option but to use our best judgement in such cases. But there are dangers involved in such a situation, and the necessary statistical services must be organised and developed very soon. In the absence of statistics neither unsound nor sound policies can be judged on their true merits.

## PROGRESS SINCE PARTITION

3. The country inherited some statistical units at the Centre and in the Provinces and States from pre-partition India. However, the collection and processing of statistical data was in large part a by-product of administration, and the country lacked a well-knit and properly staffed statistical organisation ; there was no effective co-ordination between the statistical cells in the various Central Ministries and in the Provincial and State Governments. Essential statistical information in many important fields was not available.

4. Great progress has been made in the collection, compilation and publication of statistics since partition. A Department of Research and Statistics was established in the State Bank of Pakistan in 1949. It deals with, monetary, banking, public debt and balance of payments statistics. A central organisation for statistics, the Central Statistical Office, was also established in the same year. It deals with trade statistics, industrial statistics, certain labour statistics, agricultural and other price statistics, and national income estimates. The Provincial Statistical Board and Bureau of Commercial and Industrial Intelligence was set up in East Pakistan in 1949. It compiles and publishes some important provincial statistics.

5. The present organisation for the collection of statistics is highly decentralised. The Provincial Governments are responsible for the collection of a major part of the statistics such as agricultural statistics, labour statistics, private transport, prices, education, and vital statistics, and provincial, state and local government financial statistics. Furthermore, within each Government, whether Central or Provincial, there is no central body that collects and processes even the main part of the statistics of that Government. At the Centre the Central Statistical Office largely uses the data provided by the statistical cells in the various Central Ministries and the Provincial and former State Governments. It performs limited co-ordination functions. In East Pakistan the Provincial Statistical Board and Bureau of Commercial and Industrial Intelligence plays a similar role in respect of provincial statistics. In the former provinces of West Pakistan, now merged into One Unit, there were no governmental statistical organisations corresponding to the Provincial Statistical Board and Bureau of Commercial and Industrial Intelligence of East Pakistan.

6. Some of the existing statistics are quite good, but there are serious deficiencies in others, in respect of both availability and quality. Statistics can be reliable if a systematic statistical process is followed right from the point at which the statistics originate to their final accumulation. This is not done in the case of statistics in many fields. Statistics on money, banking and public finance are quite good from the point of view of quality as well as availability. In agriculture some basic statistics, such as the size of owner and cultivator holdings, forms of tenure and land utilisation, are not available. Current statistics on crop acreages are probably fairly accurate, but statistics relating to yields and prices are very deficient. No data are available on farming organisation, farm equipment and agricultural costs, including costs of seeds, feed and fertilisers. No information is available about the extent to which the farm produce is sold or consumed by the cultivators themselves. Livestock data are for the most part very old and of little value for all practical purposes. Industrial and mining statistics are incomplete. Some data about large-scale industrial establishments in respect of employment, wages, capital invested, raw materials and fuels used, *ex*-factory prices of the finished commodities, rent, interest, profits, etc., are available ; but the reporting is incomplete, so that quantitatively the data are not reliable. Production data on a monthly basis are incomplete. Very little information is available on small-scale and cottage industries, which are a very important part of the industrial sector.

7. Data on balance of payments, imports on private account, and exports are well developed and are readily available. However, data on imports on government account are very incomplete. There are no reliable estimates even of the total commodity imports on government account. Data on wholesale and retail trade are altogether inadequate. Information on prices for many items and for many different places is available regularly. There are, however, very few price indices, which is a very serious deficiency. The existing cost of living indices are defective and cover five industrial centres only. Reasonably good data are available on the public sector of transport and communications but not for the private sector. Available information on labour, employment and wages is extremely deficient. Vital statistics are very defective. Other social statistics are equally deficient. Population data are available on the basis of the population census taken in 1951. There is, however, no arrangement for keeping the population estimates up to date. Data on net immigration leave much to be desired.

8. A large part of the statistics which are necessary for the construction of social accounts is deficient. This seriously affects the accuracy of the national income estimates. Sufficient data are not available for determining the impact of the development activity on the economy, which makes it difficult for the Government to give a complete and convincing account to the people of its stewardship, and to determine its policies and programmes in the full knowledge of their probable results.

## DEVELOPMENT PROGRAMME

9. The following special features of the country have to be kept in mind in formulating the development programme in the field of statistics.

(a) Pakistan has a federal structure and both the Centre and the constituent units are concerned with statistics ;

(b) The existing arrangements for the collection, processing and publication of statistics are highly decentralised ;

(c) There is a shortage of technical personnel in the field of statistics ; and

(d) The percentage of literacy is low. This limits the methods that can be used in the collection of statistics and points to the need for collecting primary statistics in many cases through personal interviews rather than through correspondence.

10. There have to be separate statistical organisations for the Centre and for the constituent units. However, there is need for proper co-ordination between the central and provincial organisations, between the central organisation and the statistical units in the various Central Ministries, and between the provincial organisations and the statistical units in their respective provinces. Such co-ordination is necessary to ensure a reasonable degree of uniformity of approach, to prevent duplication of effort, to provide for comparability of statistics and to make the best use of the limited resources in respect of technical personnel. An effective means for bringing about the necessary co-ordination in a federal set-up is the convening of statistical conferences attended by representatives of the Central and Provincial organisations to discuss and reach agreement on general matters of statistical policy and procedure. Such conferences should be held periodically.

11. At the Centre, the Central Statistical Office should be strengthened and the scope of its work should be enlarged. Its status should be raised, so that it may be able to provide leadership to the whole country in the field of statistics. Due to the federal structure of the country, the Central Statistical Office cannot have any administrative control over the Provincial statistical organisations. It can, nevertheless, effectively influence the work of the provincial organisations by the high quality of its own work and of its technical advice. The Central Statistical Office should, as has always been intended, become the adviser and co-ordinator of all Central Government statistical units, although the latter might remain under the administrative control of their respective Ministries. The permanent head of the Central Statistical Office should continue to report directly to the Secretary of the Ministry in which it is located. He should be an experienced administrator, having a good background in economics and a lively appreciation of the value and uses of statistics. He himself need not be a trained statistician, though one or more of his principal assistants should be.

12. The Central Statistical Office should have a carefully thought-out research programme on the statistical problems of the country. It should formulate plans for the development of statistics, should assist in the establishment of priorities, should devise appropriate statistical methods, procedures and standards, should promote the comparability of statistics compiled by the various statistical agencies through the provision of standard classifications, definitions and terminology, and should work towards building a fully co-ordinated national statistical system. It should keep itself fully informed about the methods, nature and the quality of work being done by the various statistical agencies in the country. This is essential for the effective utilisation of the available statistical material, and for preventing unnecessary duplication of effort.

**Development of statistics**

13. The quality of the statistics compiled and published by the Central Statistical Office should be improved by improving the various agencies having primary responsibility for the collection of statistics used by the Central Statistical Office. This is particularly necessary in respect of national income estimation, for which the Central Statistical Office uses statistics largely collected by other agencies. The national income estimates should be improved and should be prepared in terms of constant prices. The existing national income estimates should be steadily revised and improved as more data become available. Agricultural statistics need to be improved greatly. A programme for a complete agricultural census should be prepared and put into effect immediately. A comprehensive agricultural census is a big undertaking. It will require considerable preparation and will take a good deal of time. Active participation of the various Provincial agriculture departments and the Central Ministry of Agriculture in this work would be necessary. The responsibility for the field work of the census might rest with the Central Ministry of Agriculture, and the Central Statistical Office should undertake the necessary tabulation. The

census will provide basic data on agricultural population and employment, land utilisation, land holdings and tenures, irrigation, drainage, farm equipment, crop-rotation, use of improved seeds, manures, fertilisers and insecticides, soil treatment, crop-acreage, acre yields, trees, livestock, poultry, etc. The basic data so obtained can be kept up to date by regular reporting in some cases and by periodical sample surveys in others. The census will thus provide a basis for the supply of reliable current agricultural statistics required for various purposes. As agriculture accounts for about 60 per cent of the national income, the improvement of agricultural statistics will go a long way towards improving the computation of social accounts for the estimation of national income and for other purposes.

14. The scope of the census of manufacturing industries now being regularly undertaken by the Central Statistical Office should be extended to cover factories having ten or more employees and using power. An index of large-scale industrial production should be compiled and issued regularly. In the field of foreign trade, the Central Statistical Office should have the entire responsibility for processing and compiling the foreign trade data instead of sharing it with the Customs Department as at present. What is needed is an improvement in the classification of various items appearing in the bill of entry, which are, at present, put by Customs staff under the various groups of the commodity classification, without any technical supervision. If the entire process is supervised by the Central Statistical Office, it will be possible to improve the work of commodity classification and to provide greater details about imported commodities and their countries of origin. The deficiency in respect of the statistics on the imports on government account should be made up and a system for complete and accurate reporting of these imports should be developed and put into operation. A beginning should also be made in reconciling trade and balance of payments data.

15. The existing programme for the collection, compilation and publication of a large number of individual wholesale and retail price series should be continued. However, price reporting should be improved. The cost of living indices for industrial workers, which cover only five industrial centres at present, should be improved and extended to other important industrial centres. Cost of living indices for other income groups should also be compiled. Wholesale price indices should be compiled and issued regularly.

16. The decennial population census should be closely tied with other statistical data and the responsibility for census operations should be transferred to the Central Statistical Office. Previously the census was viewed as a problem of law and order administration and political representation. Its prime importance now lies in its relationship to the economy of the country including development. The Census Office should therefore form part of the Central Statistical Office. A programme for the development and improvement of statistics on migration should also be put into effect. A regular series of population estimates and forecasts should be initiated. Programmes for labour, education and vital statistics should be planned and put into effect.

17. A national sample survey organisation should be established as a part of the Central Statistical Office. The basic programme of the National Sample Survey should consist of one or more sample surveys at a time, designed to fill major gaps in the national statistical system. There is need for undertaking sample surveys on a national basis in such fields as :

(a) Small scale industry ;
(b) Agricultural production, costs and prices received by cultivators ;
(c) Monetary and non-monetary incomes in agriculture ;
(d) Employment, wages, and volume of business, in wholesale and retail trade and in service ;

(e) Vital statistics ; and

(f) Construction volume and construction employment.

During 1955, the Central Statistical Office conducted a family expenditure survey on a sample basis and the Ministry of Labour started certain manpower surveys on a sample basis. When the National Sample Survey Unit is established, appropriate arrangements should be worked out for consolidating field staff and co-ordinating the planning and execution of surveys, so that the information required by various agencies is made available expeditiously and efficiently. The establishment of a National Sample Survey on a permanent basis would be more economical and efficient than *ad hoc* units temporarily created for particular enquiries. In view of the number of enquiries that need to be undertaken, there is no possibility of the National Sample Survey remaining idle at any time.

18. East Pakistan has a Provincial Statistical Board and a Bureau of Commercial and Industrial Intelligence. A provincial statistical organisation will have to be established for West Pakistan also. The provincial statistical organisations should be such as can take care of provincial statistics by having direct responsibility for the collection of certain statistics and by co-ordinating the work of the various statistical units in the Province having primary responsibility for the collection of other statistics. The provincial statistical organisations and other statistical units in the Provinces should be adequately staffed to be able to discharge their responsibilities properly. The quality of the Provincial statistics must be improved to increase their usefulness to the Provincial and Central Governments and to the planning organisations at all levels. The bulk of the statistics used by the Central Statistical Office in the various national statistical series and in the construction of social accounts are provided by the Provinces. Unless the Provincial statistics are reliable, the accuracy and usefulness of the national statistical series and the national income estimates will be questionable. It is also imperative that steps should be taken immediately to fill the important gaps in the provincial statistics.

19. There is a serious shortage of technical personnel in the field of statistics and this is proving a limiting factor in the development of statistical services in the country. The establishment of a systematic training programme is clearly indicated. The teaching of statistics in the universities should be encouraged. The Central Statistical Office should have a training programme of its own to provide facilities for the training of unqualified personnel engaged on statistical work in the various statistical units and cells at the Centre and in the Provinces. Properly qualified persons should be sent abroad for higher studies in statistics. The conditions of service and the emoluments of statistical personnel at the Centre and in the Provinces should be made sufficiently attractive for persons desirous of adopting statistics as a career. Consideration should be given to the enactment of statistical legislation. The legislation need not be very elaborate, as it would be desirable to leave some flexibility for the development of the statistical system. It should, however, invest the collecting agencies with sufficient powers for obtaining the necessary information.

20. We consider that the development of the necessary statistical services in the Provinces and at the Centre is a most urgent need. It is essential if the country wants to make the best use of its limited resources and to avoid making costly mistakes. We have provided three million rupees in the Plan for the development programme in statistics, of which about 2 million may be required for the establishment of a National Sample Survey Unit and the remainder is for the creation of a Statistical Organisation for West Pakistan and other steps to strengthen statistical work. The prospective expenditure on the agriculture and livestock census has been included in the Agriculture programme.

# PART IV

# RESOURCES FOR DEVELOPMENT

### Chapter 8

# INTERNAL FINANCIAL RESOURCES

## THE ROLE AND SOURCES OF FINANCE

1. The role of finance is not merely one of providing money; rather, its fundamental task is to make available the real resources, human and material, necessary for the fulfilment of development objectives. The resources required for development in the Plan period, in the monetary sector of the economy, amount to 11,600 million rupees, at present prices, consisting of real resources valued at 8,000 million rupees to meet the requirements of the public sector programme and 3,600 million rupees of resources for gross private investment.

2. The size of this programme was determined after the potential availability of aggregate real resources for development purposes had been assessed. A basic objective of financial policies must be to assure, on the one hand, that the scale of the Plan is sufficient in magnitude to utilise, as fully and effectively as is practicable, the margin of real resources which the economy can provide for development, and on the other hand, that the Plan's total requirements do not exceed the real resources potentially available for development. This is the essential goal of financial balance ; it means, fundamentally avoiding any serious excess or deficiency of claims in relation to the real resources which can be made available. Perfect precision in this matter is impossible. Fortunately, such precision is also unnecessary. It is essential, however, to prevent any sustained and substantial imbalance between resources and claims. A large and persistent imbalance, whether it resulted from an excess or a deficiency of claims, would jeopardise the achievement of the development goals.

3. It is difficult enough to make reliable forecasts of the availability of aggregate real resources even for a very short period ahead. It certainly cannot be done for periods as long as five years. This is one reason why it is impossible to treat any plan as fixed and rigid in all its details. Provisions must be made for continuous analysis of performance under the Plan and of the evolving economic situation in the country. A ' safe ' Plan, which under-utilises resources because it is based upon overcautious assumptions, is just as unsatisfactory as one which is based on over-optimistic assumptions about resources and exceeds capabilities. Planning should be done on the basis of reasonable projections of available resources, subject to appropriate adjustments if sizeable shortages or surpluses, develop.

4. It should be recognised also that although overall financial balance is a necessary feature of a sound plan, such balance alone is not sufficient to assure the feasibility of the programme. Financial balance relates to the availablity of real resources of different kinds being aggregated for this purpose on the basis of their market values at present prices. In addition to the requirements of overall balance, it is also necessary to adjust the scale and composition of the development programme to the limitations of our supply of certain specific resources, such as foreign exchange, and entrepreneurial, organisational and technical capabilities. Problems of specific resources are considered elsewhere in this report ; financial balance alone, the balance of real resources in the aggregate, is the subject of this chapter.

5. The potentially available supply of goods and services in any year consists of the Gross National Product which can be produced plus the net import balance in current transactions with the rest of the world which can be financed. The bulk of this total supply will be currently consumed. To arrive at the resources available for development, one must

deduct the consumption goods and services used by the private secter as well as by the public sector for purposes other than development, such as civil administration and defence. The remainder represents the margin of resources available for development.

6. This margin contains two elements—internal saving (gross) and external finance. Saving is performed both by individual action in the private sector and by collective action through the public sector. Public saving consists of the excess of the public sector's gross income (revenues from taxation and from such non-tax sources as the gross profits, before depreciation charges, of government-owned enterprises) over public expenditure for non-development, or " consumption" purposes. This excess of revenues represents a levy imposed on the community for the purpose of restricting private claims against available resources, thus freeing these resources for development. Private saving, on the other hand, is the result of individual decisions to refrain from consuming some portion of income. It consists of the margin of personal income (after tax) over personal consumption, plus the undistributed profits and depreciation accruals of private firms. It is, in other words, the unconsumed portion of the private sector's gross income. Internal saving (gross), which is the sum of public saving plus private saving, represents the excess of gross national product over total consumption, private and public ; it is the margin of gross national product available for development.

7. External finance adds to the aggregate physical supply of goods and services by permitting a surplus of imports in the balance of international payments on current account. The sources of external finance are (a) foreign grants and loans to the public sector, (b) the utilisation of reserves of gold and foreign exchange and (c) foreign investment in and credits to the private sector. Although temporary fluctuations, upward and downward, in reserves are bound to occur, it has been assumed, in framing the development programme, that external reserves, which have been very substantially reduced in recent years, should not undergo further net depletion during the Plan period. Consequently, apart from transitory deviations, the deficit on current account should be limited to the external finance made available by foreign governments international agencies and private investors and lenders abroad. The import balance on current account made possible by external finance provides additional resources for the development programme above what is available from internal saving.

8. In determining the size of the development programme, we have estimated the magnitude of each of the main sources of resources available for development purposes—internal saving, public and private, and external finance. These estimates of available resources during the Plan period are presented below. In projecting the potential availability of internal resources we have assumed that the real national product can increase by about 20 per cent during the Plan period, and that the average level of prices, apart from temporary fluctuations, will remain close to the 1955 post-devaluation level. The national product, as it grows, should provide a larger and larger volume of saving, thus permitting further expansion of the scale of development, and laying the basis for continued growth in the national product. If this automatic tendency for saving to rise as national income grows is reinforced by vigorous public measures the successive increments of resources for development can be substantial.

## PUBLIC SAVING

9. Our projections of public saving, and of the consolidated revenues and non-development expenditures of the Central and Provincial Governments for the Plan period are given in Table 1. For the Plan period as a whole, revenues are estimated at 11,540 million rupees and non-development expenditures at 10,040 million rupees, leaving a net balance of public saving available for dvelopment purposes of 1,500 million rupees.

## TABLE 1

### *Public Saving*

**Consolidated revenues and non-development expenditures of Central and Provincial Governments, 1955—60**

(Million rupees at 1955 post-devaluation prices).

| | Total | Annual average |
|---|---|---|
| Revenues ... ... ... ... | 11,540 | 2,308 |
| Less Non-Development Expenditure ... ... | 10,040 | 2,008 |
| Public Saving ... ... ... ... | 1,500 | 300 |

10. Revenues exceed non-development expenditures by only a small margin in the early years of the Plan. The major portion of public saving will be concentrated in the latter years of the Plan. The increase between the first year and the final year of the Plan period in the annaul amount of public revenue available for development purposes would absorb about 13 per cent of the increase in the estimated gross national product. An increase of this magnitude appears to be quite within the country's means. In fact as a result of devaluation and higher customs revenue from goods imported under foreign aid, Government revenues in 1955-56 are estimated to be nearly 20 per cent higher than in 1954-55. The increase in public saving after 1955-56 reflects a projected rise in revenues of 25 per cent with only a small increase in non-development expenditures. This growth in public saving will come about partly as the automatic result of expansion of production, incomes, and external and internal trade. But to achieve it fully a series of positive measures will be needed to augment revenues and to prevent unnecessary expansion in non-development expenditures. The measures which we deem necessary and the detailed estimates underlying the projection shown in Table 1 are set forth in the following chapter.

11. The concept of public saving which we have used has been framed for the specific purpose of measuring the contribution of public revenues to the resources available for the Plan. The public development expenditures projected by the Plan include expenditures for the replacement as well as for the expansion of publicly-owned physical capital. Correspondingly, public saving has been computed on a gross basis, by including as an element of revenue the depreciation accruals of public enterprises from which replacement can be financed. Moreover, the development outlays embraced by the Plan are not confined to investment in fixed capital, but include outlays on certain new or expanded schemes in the fields of education, health, Village Aid and other social services which, although not resulting in the creation of new physical facilities, serve to increase the community's intangible productive capital, by raising the fitness and skill of the people. Accordingly, in computing public saving available for development purposes, we have deducted from gross revenues only public expenditures which we have classified as non-developmental. The figure for public saving derived on this basis is considerably higher than the figure which would be obtained if we were measuring merely the resources available for net investment; our estimates should not be interpreted as measuring public saving in this latter sense.

12. Moreover, public saving, as the term is used here, should not be confused with a surplus in the revenue budget. The distinction between development expenditures and non-development expenditures, upon which our concept of public saving rests differs from that

between revenue disbursements and capital disbursements in the official budget tables of Central and Provincial Governments. Our definition of revenues also differs to some extent. from that used for budget purposes.

## PRIVATE SAVING

### Projection and Definition

13. Our projection of potential private saving for the Plan period is 5,900 million rupees. The annual rate of saving is expected to rise as national income grows. Our projection for 1959-60 is estimated to be 42 per cent above the level of 1954-55.

14. Several points with respect to the meaning and scope of private saving, as the term is used in this report, should be noted. First, our concept of private saving includes depreciation accruals on privately-owned physical plant and equipment.

15. Second, our projection of private saving excludes such saving as will be absorbed by the normal expansion of privately-owned stocks of raw materials, goods-in-process and semi-finished and finished products. Owing solely to lack of data, our estimate of private investment in recent years and projections for the Plan period cover only investment in fixed capital. The investment needed to increase stocks of raw materials, goods-in-process and semi-finished and finished articles is not included in our figures as part of the development programme. The need for working stocks will rise as a result of the growth in national product and the broadening of the monetary sector of the economy, and saving is just as necessary to expand working stocks as to enlarge fixed capital. Since we have not been able to include any estimate for this type of investment in the development programme, it was also necessary to omit the saving which will be absorbed by normal expansion of working stocks from our estimates and projections of private saving.

16. Third, the estimates of private saving used in this chapter relate to the monetised sector only. Similarly, the figures for the development programme given in this chapter, refer only to money expenditures for development purposes. We have not here included any estimates of the saving which takes place in the non-monetised sector, nor have we included in our development programme the corresponding private investment in the non-monetized sector. This omission does not imply that this form of saving and investment is unimportant ; on the contrary, one of the main objectives of the Village Aid programme is to stimulate such saving and investment through voluntary, cooperative effort in improving village facilities. The unpaid work undertaken by families and villages to improve local facilities should become a most significant element in our whole development effort, and in this sense it is an important part of the Plan. However, such saving and investment involve no specifically financial problems and it is for this reason that the non-monetized sector has been excluded from the estimates of private saving and private investment presented in this chapter.

17. Fourth, it should be stressed that our projection of private saving, like that of public saving, refers to potential rather than actual saving. In other words, these projections represent the amount of saving which would be forthcoming if development expenditures were maintained at the highest level which the economy can support without inflating

the price level of essential consumer goods. Development expenditures provide money incomes to those who are engaged on the development schemes as workers or as suppliers of materials. A level of development expenditures which makes inadequate use of all potential resources tends directly to restrict private incomes resulting from construction work and other development activities. As a consequence, the flow of private money payments by those whose incomes have been restricted is cut, and money income declines throughout the economy. An inadequate level of development expenditure restricts both consumer spending and private and public saving. This may cause a decline in consumer goods prices, but lower prices resulting from restricted consumer purchasing power rather than from increased production and supplies are not a net social benefit. If development expenditures are not sufficient to absorb present productive capabilities, current income and present rate of actual saving are below what is possible, and the future growth of the development effort is also restricted. For forecasts of resources available for development, it is potential saving, rather than actual saving, which is relevant. Whether actual saving will come up to, or all short of, potential saving depends upon the adequacy of the Plan in relation to available real resources.

18. Finally, our projection of potential private saving, as well as the projection of public saving, should be interpreted as an estimate of underlying trend values. The savings potential in any one year may temporarily be substantially above or below its trend value. The national product is subject to sizeable year-to-year fluctuations, arising chiefly from variations in harvest or from fluctuating market conditions for export products. Although these short-term upward and downward movements are accompanied by movements in the same direction in total consumption of goods and services, the variations in consumption are usually smaller in absolute magnitude than the variations in real income. Since saving consists of the small excess of real product, or real income, over total consumption a somewhat smaller movement of consumption than of income necessarily means a relatively wide percentage change in saving. In years of abundant harvests or favourable export markets, a slower increase in consumption than in real income would generate abnormally large saving, which should be used to build up foreign exchange reserves and internal stocks of goods. In bad years, the severity of the decline in consumption is usually moderated by such means as using external reserves, drawing upon domestic stocks, obtaining emergency aid or, as a last resort, curtailing capital goods imports, to provide exchange for the purchase of essential consumer goods. All these devices serve to bolster consumption in the face of declining income, thus reducing saving below its trend value.

19. It is, of course, impossible to take account, in our projections, of these large short-term changes in the rate of saving. It is for this reason that our projections must be presented as five-year totals rather than annual estimates. Sizeable, temporary deviations from the underlying trends must be expected in abnormally good or abnormally bad years. These wide short-term variations in the rate of saving, resulting from fluctuations in harvests or in terms of trade, are a major obstacle to the execution of an orderly development programme. It is highly important, therefore, to build up substantial stocks of foodstuffs, and, if possible, increase reserves of foreign exchange, in order to protect the development programme from the disruption which these fluctuations in saving might otherwise produce.

### Method of estimation

20. The computation of our estimate of potential private saving involved two main steps. The initial step was to obtain a base figure by estimating the trend value of potential private saving in 1954-55. The second step was to project this figure for the Plan period, taking into account the effect both of growth in national income and of certain measures which we recommend as essential for encouraging thrift.

21. To arrive at a base figure, we began by estimating the average annual rate of actual private saving during the four-year period from 1951-52 to 1954-55. This computation is shown in Table 2. The actual rate of private saving in any past period may be inferred by use of the following relationship :

Private saving equals
(1) Private investment domestically financed *plus*
(2) Public expenditures financed by increase in domestic liabilities or liquidation of assets, *minus*
(3) Decrease in gold and foreign exchange reserves, and other balances abroad.

This formula was used in our computation. The estimate of private investment in fixed capital required for this calculation is that of the Planning Board.

### TABLE 2

*Private saving, annual average, 1951-52 to 1954-55*

| | (Million rupees) |
|---|---|
| 1. Domestically—financed private investment : | |
| Private investment (gross) ... ... ... ... ... ... ... ... | 5,63 |
| *Less*—Foreign investment in and credits to private sector ... ... ... ... | 37 |
| Net-domestically-financed ... | 5,26 |
| 2. Public expenditures financed from domestic non-revenue sources : | |
| Through increase in domestic liabilities (permanent, floating and unfunded debt, and increase in deposits, etc.). ... ... ... ... ... ... ... ... | 3,70 |
| Through decrease in assets, (sale of land and PIDC assets and decrease in cash) ... ... | 1,86 |
| Total (1) and (2) ... ... | 10,82 |
| 3. *Deduct*—decrease in foreign exchange (and gold) holdings ... ... ... ... ... | 1,76 |
| Private saving ... ... | 9,06 |

22. Table 2 shows that private investment annually absorbed, on the average, an estimated 526 million rupees of domestic funds. Public expenditures financed through domestic borrowings, liquidation of assets and allied methods averaged 556 million rupees. Thus, total domestic financing, both to expand fixed capital in the private sector and to provide funds for public expenditures, averaged 1082 million rupees. The absorption of real resources through such internal financing exceeded the resources made available through private saving, as is revealed by the reduction of external reserves at an average rate of 176 million rupees. Subtracting this figure, private saving may be estimated to have provided annually an average of 906 million rupees of resources.

23. To arrive at a figure for the trend value of potential private saving in 1954-55, expressed in rupees of 1955 post-devaluation buying power, this figure should be adjusted to allow for a number of factors. These factors include the upward trend of real income during the four-year period, the distinction mentioned earlier between actual and potential saving and adjustment to rupees of 1955 post-devaluation purchasing power. After roughly evaluating these factors, we have estimated the trend value of potential private saving for 1954-55, expressed in rupees of 1955 post-devaluation purchasing power, at 900 to 1000 million rupees. Consequently, we have adopted 950 million rupees as our base figure for 1954-55.

24. The projection of private saving for the Plan period involves two further assumptions. First, we have assumed that real national product will increase by 20 per cent from 1954-55 to 1959-60. Second, we have assumed that one-tenth of the rise in gross national product will be devoted to increased private saving.

25. It should be clearly understood that a 20 per cent growth in national product can be achieved only through a vigorous implementation of the Plan. Without substantially enlarged and balanced development programme which concentrates limited resources upon schemes of highest productivity an annual rate of growth in real income approaching 4 per cent would not be possible. This annual rate of growth in real income somewhat exceeds that of Japan in the period from 1885 to 1919. Allowing for growth of population, it would permit a rise in *per capita* income of nearly 2·4 per cent per year *Per capita* consumption would show an increase of roughly 1·4 per cent per year.

26. Moreover, our assumption that as much as one-tenth of the increment of real national product will be devoted to increased private saving requires for its fulfilment the strengthening of existing governmental measures, and the adoption of certain new measures to encourage thrift and discourage non-essential expenditure. Private saving, at 950 million rupees in 1954-55, represented about 5 per cent of gross national product. Thus, an incremental ratio of 10 per cent implies that as real income increases, a rising fraction of the total income will be saved. A considerable portion of saving in recent years was performed by recipients of temporary, windfall profits. The expansion of cotton spinning and weaving capacity has already reached a point where mill margins have been somewhat reduced from earlier inflated levels. Devaluation of the rupee, while raising the incomes of producers of export crops, has reduced the dispartiy between the external prices and the domestic prices of imported goods, thus lowering the extremely wide profit margins of importers. The diminution of the previously inflated profits of mill owners and of importers may well reduce the saving of these groups.

27. Along with these developments, the gain in tax revenues in 1955-56 resulting from improved tax collection, from devaluation and from customs receipts on foreign aid imports, and the further increase in revenues to be expected from adoption of the recommendations made in the following chapter will be partly at the expense of private saving. Taking all these factors into account, our assumption of a 10 per cent incremental saving ratio represents a goal to be achieved ; it should not be taken for granted as an automatic and assured by-product of economic growth.

## Measures to encourage thrift

28. To assure the required growth of private saving, it is necessary, in the first place, to impose deterrents to non-essential consumption. This requires tight import controls and a rigorous denial of exchange permits for the imports of non-essential consumer goods. As the availability of foreign exchange is increased, it is of the utmost importance that external buying power should be concentrated upon increased imports of raw materials, repair parts, and new capital equipment, and that none of it be diverted to the importation of luxuries, on avoidable travel spending abroad, and similar uses. Strict exchange controls, by limiting the opportunities for luxury consumption, are a potent factor for conserving foreign exchange and promoting private saving.

29. It is also of importance that expenditure on domestically-produced luxuries should be appropriately curbed. Although the tax proposals which we have recommended will have a mild restraining effect by absorbing some of the growth in income of the well-to-do groups, these proposals must be supplemented by more direct measures. Restrictions on the scale of ceremonial and other sumptuous entertaining should be reimposed and strictly enforced. It is also important that a general surveillance should be exercised over new

private investment, both to encourage the establishment and expansion of enterprises which will contribute to economic growth and to the raising of general living standards, and to discourage costly investment in forms which, instead of strengthening the economic foundations for a broad rise in living standards, cater only to the taste of a small, well-to-do group. This would include restriction of luxury construction of all sorts, whether for houses, high-class shops, expensive amusement places, or elaborate public buildings. In Western Europe the growth of commercial and industrial wealth was aided and promoted by the frugality of the middle class. As this class gained in wealth and power, the lavish practices of the older land-owning aristocracy came increasingly into disrepute. In this country also a growth of frugality is essential in order that a major portion of the growing incomes from industry and trade, and the incomes of landowners, may contribute to further economic growth.

30. The restrictive measures taken to curb non-essential consumption should be accompanied by other steps to encourage saving. Measures for the development and expansion of the operations of the life insurance companies are proposed in the chapter on credit, banking and insurance. We also recommend that, while interest rates on Government securities held by the banking system should be kept low, substantially higher rates should be put into effect on securities designed to attract the funds of other investors, rand on saving deposits.

## INTERNAL SAVING

31. Our projections of public and private saving are combined in Table 3, which shows the resources available for the development programme from domestic sources.

TABLE 3

*Internal saving (gross)*

(Million rupees of 1955, post-devaluation purchasing power)

| | Total | Annual average |
|---|---|---|
| **Public saving** ... ... ... ... ... ... ... ... | 15,00 | 300 |
| **Private saving** ... ... ... ... ... ... ... ... | 59,00 | 11,80 |
| **Total** ... | 74,00 | 14,80 |

32. Total internal saving during the Plan period, according to our projection, represents close to 7 per cent of estimated gross national product in these years, as compared with about 5 per cent in 1954-55. As was noted earlier, saving as the term is here used refers to the total internal resources available for development uses, including replacement as well as expansion of fixed capital and certain expenditures on development schemes which do not result directly in physical capital formation. It excludes, however, non-monetized saving and the savings absorbed by normal investment in working stocks. Using the conventional definition of saving—internal resources available for net investment—the ratio to national income during the Plan period may be roughly estimated to be in the neighbourhood of 5 per cent.

33. During the Plan period the projected rate of growth of internal saving averages about 16 per cent annually, in comparison with an annual rate of growth of national income of slightly below 4 per cent. Almost one-fourth of the increase in gross national product will be absorbed by increased gross saving, public and private. Gross internal saving in

the final year of the Plan will be equivalent to about 8 per cent of the country's gross product, against about 5 per cent in 1954-55. It should be kept in mind that we have treated as saved that portion of public revenue which finances increased social service and research outlays, and that we have assumed a total defence expenditure of 4775 million rupees during the plan period.

## EXTERNAL FINANCE

34. We estimate that new foreign investment in the private sector will amount to about 520 million rupees during the Plan period. On the other hand, repayment of deferred credits previously granted to finance the import of machinery will absorb nearly 120 million rupees, leaving a net import of capital into the private sector of 400 million rupees.

35. Any projection of foreign loans and grants to the public sector is necessarily conjectural, because the amount depends largely on future decisions of foreign governments and lending institutions. The figure which we have projected, 3,800 million rupees, is believed to be well within the range of possibilities. Our expectations of foreign loans are based on the rate at which it has been possible to borrow from abroad in the past few years as well as on the existence of suitable projects which can be made the basis of negotiations for foreign loans in the future. Our estimates of foreign aid assume a considerable increase in the rate at which aid has been received so far.

36. We consider that foreign exchange reserves, although showing temporary fluctuations should not be permitted to undergo further net depletion during the Plan period.

Our projection of external finance is shown in Table 4.

TABLE 4

*External finance*, 1955—60

(Million rupees of 1955, post-devaluation purchasing power)

| | Total | Annual average |
|---|---|---|
| Loans and grants to public sector ... ... ... ... ... ... | 38,00 | 7,60 |
| Investment in and credits to private sector ... ... ... ... ... | 4,00 | 80 |
| Total ... | 42,00 | 8,40 |

37. External finance performs a dual role in the economy. By permitting a surplus of imports in the balance of international payments on current account, it adds to the aggregate physical supply of disposable goods and services, thereby permitting development expenditure to exceed internal saving. This would be the main significance of external finance if the economy were not faced with a special limitation with respect to imports. As is well known, however, the country faces also a specific shortage of foreign exchange. It is for this reason that the Plan places heavy emphasis on the expansion of domestic production to replace imports and, so far as possible, on the development of exports. In view of the special shortage of foreign exchange, external finance has a double significance ; it serves both to increase the aggregate resources and also relieves a specific shortage of key importance to the economy. In this chapter external finance is treated only in the first of these

aspects, as an addition to the aggregate physical resources available for development purposes. The specific balance of availability and requirements for foreign exchange is the subject of a separate chapter. It should be mentioned here, however, that the role of external finance is of far greater strategic importance to the execution of the Plan than a comparison of its monetary magnitude with that of internal saving would suggest. A large curtailment of foreign aid or a sizeable shortfall of export earnings would necessitate halting work on many schemes. Most of the development schemes involve considerable expenditure on imported capital equipment and technical aid. It is obvious that external aid and credit in these forms contributes directly to the development programme. Moreover, external aid in industrial materials and foodstuffs permits an increase in the tempo of the development effort both by freeing some foreign exchange earnings, which would otherwise have to be used for these purposes, for financing capital goods imports, and by adding to the total supply of these goods. With additional supplies of goods, it is possible to increase internal expenditures for development without producing inflationary consequences.

## THE SOURCES AND USES OF RESOURCES FOR DEVELOPMENT

38. It is now possible to summarise our projection of the real resources available for development purposes during the Plan period and to compare the aggregate availability of resources with the requirements of the Plan. This comparison is made in Table 5. The potential availability of real resources, measured in rupees of 1955, post-devaluation purchasing power, is estimated at 11,600 millions, consisting of 1,500 millions of public saving, 5,900 millions of private saving and 4,200 millions of external finance.

*Resources and Uses of Resources for Development—1955—60*

(Million rupees of 1955, post devaluation purchasing power)

| Sources : | | Uses : | |
|---|---|---|---|
| Public saving ... ... ... ... | 15,00 | Private investment ... ... ... | 36,00 |
| Private saving ... ... ... ... | 59,00 | Public development expenditure ... | 80,00 |
| External finance ... ... ... ... | 42,00 | | |
| Total ... | 1,16,00 | Total ... | 1,16,00 |

39. We consider that the foregoing projections of the trend of availability of resources for development purposes provide a reasonable guide in setting the magnitude of the development programme. It has already been noted that our trend projections will undoubtedly require future, periodic, revisions in the light of experience under the Plan, and that even with such revisions, internal saving may be expected to deviate markedly in exceptionally good or exceptionally bad years from its estimated trend.

40. These considerations lead to two important conclusions. In the first place, the Plan must not become fixed and rigid. A considerable measure of flexibility must be preserved with respect to its tempo, magnitude, and composition. Adjustments should be made whenever indicated by the periodic revisions of the projections of resources available. Secondly, even though the required balance is maintained between the size of the programme and the trend of available resources, year-to-year fluctuations in harvests or in export markets may produce sizeable, temporary discrepancies or gaps between resources actually available and the requirements of our programme. Such temporary gaps are to some

extent inevitable. Although flexibility in programming is essential, adjustments, upward or downward, must be carried out in an orderly and efficient manner. Large revisions cannot be executed suddenly without great administrative difficulty, and the disruption and waste resulting from abrupt changes in tempo would be exorbitantly costly.

41. It is the function of reserves, both foreign exchange and internal stocks, to bridge the temporary gaps which will arise from time to time. If these reserves are insufficient to meet periods of strain, any development programme which adequately utilises resources may be seriously disrupted by transitory shocks to the economy, such as a poor harvest or a temporary slump in world markets for exports. We wish to stress the need for building up foreign exchange reserves and internal stocks, particularly of foodstuffs, whenever this is feasible in order to provide a more nearly adequate cushion against temporary shocks. This is essential for a development programme of adequate size, to be sustained without disruptions and setbacks.

42. Although the country should rely chiefly on reserves instead of attempting fully to adjust the tempo of the development programme to merely temporary fluctuations in internal saving, it is of the greatest importance to prevent any large and persistent disparity between the potential real resources for development purposes and the requirements of the Plan. Failure to utilise fully the potentially available resources is grossly wasteful; the obvious remedy for such waste is energetically to expand the development effort. A very strenuous effort to accelerate the development programme is needed in order to activate the resources which can be brought in to use for this purpose.

43. Although the present urgent task is to step up the tempo of the development effort, it is also true that a development programme whose requirements outrun the real resources which can be made available for this purpose is, equally, to be avoided. If money expenditures for development purposes were allowed to rise at a more rapid rate than the real resources provided through internal saving and external finance could expand, the result would be an inflation of the price level. The need for avoiding price inflation sets an upper limit to the size of the development outlays which can prudently be undertaken.

44. It has sometime been urged that a gradual and continuing inflation of prices is desirable, on the ground that, by squeezing certain classes of consumers and increasing the share of national income going to profits, inflation actually increases real saving and thereby enlarges the margin of resources for development. Such a policy, although it may work for a time, is full of danger. It rests on the hazardous assumption that price inflation, even though persistent, will be so gradual that it will pass unnoticed. In the economic realm matters can seldom be arranged with such delicate precision. Moderate short-term movements in the price level are not seriously harmful and can hardly be avoided, but an upward trend of prices, if it persists for a considerable period, is unlikely to remain gradual and unnoticed. Once the trend becomes recognised, and further price increases come to be generally expected the result may be a flight from money into goods thus accelerating the rise in prices. It causes a withholding of marketable supplies and a disappearance of goods into speculative holdings and hoards, resulting in a disruption of production and normal trade. This deprives both the development programme and the vast majority of consumers of essential supplies and resources. Internal inflation also curtails exports, and, despite exchange controls, causes leakages of foreign exchange. Inflation, if carried to an extreme, far from stimulating development, disrupts the whole process. It is for this reason that an attempt to carry out a development programme whose requirements substantially exceed the resources which can be made available from internal saving, public and private, and from external finance may actually set back economic growth.

45. Although short-term fluctuations in the price level can hardly be prevented and should not cause alarm, a sustained upward trend must be avoided. The correction need not invariably be made through a reduction in government expenditures for development. Alternative measures to increase revenues, to reduce non-development outlays, to encourage private thrift by restricting the supply of non-essential goods, imported or domestic, to curb luxury private expenditure, and to secure additional external aid should first be considered. Government expenditures for development should be curtailed only if action in these other fields cannot be taken on a sufficient scale to correct a major imbalance.

46. The best indicator for detecting the presence of inflationary tendencies is a general index of the prices of goods and services bought by low-income consumers. This means chiefly basic foods, cotton cloth, kerosene, and a few other articles of mass consumption. If the average level of prices of goods of this class remains approximately stable, one can be confident that available resources are not being subjected to inflationary strains ; if, however, an upward tendency not ascribable to purely temporary causes becomes evident, this is a danger signal and indicates the need for corrective action.

## THE FINANCING OF GOVERNMENT DEVELOPMENT EXPENDITURES

### Availability of resources

47. As a guide in budgeting government development expenditures under our Plan, it is useful to project the real resources for development uses available to the public sector alone. Such a projection may be readily obtained by deducting the resources allocated to private investment from our previously presented estimates of total resources available for the whole development programme, shown in Table 5 above. The deductions consist of the external finance and private saving absorbed by private investment. The remaining resources, available for the development programme of the public sector, are shown in Table 6.

48. According to these estimates, the total resources available for government development expenditure during the Plan period amount to 8,000 million rupees, averaging 1,600 million rupees per year. These estimates emphasise the urgency of substantially expanding government development expenditures if potential resources are to be effectively used. The task of executing a large and rapid increase in the development programme will call upon all the resources of organisation and enterprise which the Central and Provincial Governments can bring to bear.

TABLE 6

*Resources available for Government Development Programme*, 1955—60

(Million rupees of 1955, post-devaluation purchasing power)

| Items | ESTIMATES | |
|---|---|---|
| | Total, 1955—60 | Annual average |
| Public saving ... ... ... ... ... ... ... ... | 15,00 | 3,00 |
| Foreign grants and loans to public sector ... ... ... ... ... | 38,00 | 7,60 |
| Excess of private saving over internally-financed private investment ... ... | 27,00 | 5,40 |
| Total resources available ... | 80,00 | 16,00 |
| Government development expenditure ... ... ... ... ... | 80,00 | 16,00 |

**The use of private saving for government development expenditures**

49. Of the total resources available for government development expenditures during the Plan period, we estimate that public saving will furnish 1,500 million rupees, or 19 per cent, and foreign grants and loans 3,800 million rupees, or 47 per cent. The Plan envisages that the remaining contribution of resources, amounting to 2,700 million rupees or 34 per cent, will come from private saving.

50. This utilisation of private saving by the public sector is an essential feature of the Plan, and is indispensable to any adequate and effective development programme. The circumstances which make it appropriate for the Government to perform the role of channeling a large share of the voluntary saving of the private sector into productive uses are deeply rooted in the present economic situation. If these circumstances, and the resulting need for an active Government policy for putting private saving to work, were not clearly recognised in the Plan, the development effort would be needlessly restricted and the pace of economic progress would be feeble indeed.

51. This arises from the fact that the process of economic development, at its present early stage, requires heavy emphasis on public expenditures for development purposes. Of the total development expenditures under the Plan, the public sector accounts for 68 per cent and gross private investment for 32 per cent. This does not reflect any predilection for public enterprise ; on the contrary, public outlays will broaden the opportunities for private activity. We envisage that the percentage of private investment will tend to grow as a more advanced stage of economic development is reached.

52. A large portion of projected government development expenditures are for needed expansion of " social overhead " capital, in such fields as irrigation, power, transport, and communications. Public investment in facilities of this type is essential to the growth of private industry, agriculture, and commerce. Increased expenditure on education will help to provide the trained men and women whom an expanding economy requires. The Village Aid programme is designed to promote private co-operative activities on a broad front, contributing to rural development. The programme of the Pakistan Industrial Development Corporation in launching new industries will extend industrial growth into new and productive fields which private enterprise, for various reasons, is not yet equipped to initiate. After these P.I.D.C. undertakings have become successfully established as going concerns, they will normally be transferred from public to private ownership. Finally, the development programme of the public sector includes provision of the capital funds for credit institutions to finance agriculture and private industry. Viewed as a whole, therefore, government development expenditures required under the Plan are designed to supplement and promote, rather than displace, private economic activities. Meanwhile, with the falling rate of large-scale private investment in the cotton textile industry, new avenues and opportunities for private investment in other sectors must be developed. Consequently, the role of government development schemes is now of crucial importance, and this accounts for the relatively heavy emphasis on public outlays under the Plan.

53. The most fruitful allocation of development resources between the public and private sectors, as envisaged by the Plan, actually results in a level of private investment which is well below potential private saving. This excess of private saving over internally-financed private investment provides a sizeable margin which is available for the development expenditure of the public sector. Government must channel this saving into productive channels if the resources potentially available are to be adequately and effectively used. Owing to the surplus of private saving available, this does not create inflationary dangers. This has been clearly demonstrated by the experience of the past few years when growth in Central and Provincial capital budgets has gone hand in hand with stable or

declining prices of essential consumer goods. Inflationary pressures would be created only if development expenditures exceeded the margin of real resources available to the public sector for this purpose.

**Methods of financing**

54. The voluntary saving of private firms and individuals is used by them to increase their assets or to reduce their debts ; it is embodied, therefore, in an increase in the net assets or net worth of firms and individuals. Consequently, the operation of mobilising private saving for use by the public sector is carried out by increasing the public sector's domestic liabilities and by liquidating some of its assets. These operations add to the net assets of the private sector, thus providing outlets for potential private saving.

55. In considerable degree, the Government's financing methods must be dictated by the preferences of firms and individuals with respect to the types of assets which they wish to hold. Rough estimates are given in Table 6 of the channels through which private saving may be mobilised for the development programme of the public sector. The projection of private saving available to the public sector, shown in the first line of Table 7, is taken from Table 6. In the second line of Table 7, we have attempted to estimate roughly the amount of funds which may flow into the public sector through increase in unfunded debt, the sale of publicly-owned assets, repayment of outstanding advances due from private borrowers and increase in the funds of local bodies and others held on deposit with Central and Provincial finance offices. The third line, designated " Increase in permanent and floating debt " shows the remaining amount of private saving to be mobilised through borrowing operations.

TABLE 7

*Financing Methods in Absorption of Private Saving by Public Sector*, 1955—60

(Million rupees of 1955, post-devaluation purchasing power)

| Items | ESTIMATES<br>Total 1955—60 | <br>Annual average |
|---|---|---|
| Private saving available to public sector ... ... ... ... ... | 27,00 | 5,40 |
| Methods of financing : | | |
| 1. Increase in provident funds, postal saving, Postal Life Insurance ; sale of land and PIDC assets ; repayment of advances to private borrowers ; increase in deposits of local bodies etc. | 12,00 | 2,40 |
| 2. Increase in permanent and floating debt ... ... ... ... | 15,00 | 3,00 |
| Total ... | 27,00 | 5,40 |

56. In this computation it is assumed that no net change takes place in the consolidated cash balances of Central and Provincial Governments, and that there will be no net accumulation of unspent counterpart funds. Thus the amounts taken under borrowing represent what the Government would borrow to finance its development expenditures rather than to build up cash balances. In other words if cash balances or counterpart funds are accumulated, the amount of borrowing consistent with the avoidance of inflation would be correspondingly increased. The public sector does not absorb private saving through the act of borrowing itself, but rather through the expenditure of borrowed funds. Hence, our figures for borrowing are to be taken net, after deducting any increases in working balances and counterpart funds.

57. If the portion of available private saving reaching the public sector through growth in unfunded debt, sales of assets, and allied channels should prove to be smaller or larger than we have estimated, the amount which can appropriately be raised through expansion of permanent and floating debt would be correspondingly increased or reduced.

**Effects on money supply**

58. Most of the expansion of internal public debt will take place through government borrowing from the banking system, including both the commercial banks and the State Bank. Any increase in the loans and investments of the banking system results in an approximately equal increase in currency and bank deposits. Thus, the banking system creates deposits and currency whenever bank credit expands, whether such credit expansion occurs through advances to private borrowers or through purchases of government securities. Through the process of government borrowing from the banking system, a substantial portion of the saving performed by the private sector will take the form of increased holdings of bank deposits and currency by firms and individuals.

59. This expansion of currency and bank deposits is a normal and necessary accompaniment to economic growth. A growing economy needs a growing stock of money for transactions and this need is heightened by the broadening of the monetized sector. The private sector, therefore, retains a part of its current saving in monetary form in order that working balances may keep pace with the growing real volume of transactions. Moreover, money is accumulated beyond transactions needs as one of the major methods of storing or holding wealth. In this respect, of course, the situation differs radically from that of highly-advanced industrial economies ; in those economies there exists an extensive system of specialised, intermediary financial institutions, such as life insurance companies, savings banks, building societies and investment trusts. Savers are accustomed to putting their unspent income largely into life insurance, retirement annuities, savings deposits, the shares of buildings and loan associations, corporate shares and debentures, and government or municipal obligations. Such financial institutions and habits for employing savings have had only a rudimentary development in this country, where money inevitably plays a very large role as a medium for the accumulation of savings.

60. It must be recognised that the holding of a significant proportion of private wealth in the form of inactive money balances is not wholly without possible unstabilising effects. The accumulation of wealth in the form of currency and bank deposits is, of course, greatly preferable to its accumulation in the form of bullion and jewellery. Moreover, it is not the inactivity of these money balances which creates difficulties. It is rather the possibility that, under some circumstances, they might suddenly become active. This need not occur ; as the economy grows and the rate of saving increases, there is no reason why the stock of both transactions money and inactive money should not continue to grow, even though as other media for accumulating savings become more widely available and better understood, the fraction of current saving going into accumulation of money may

be expected gradually to decline. If, owing to other causes, a price inflation were allowed to develop, however, the inactive balances might suddenly become active, thus creating a danger of runaway inflation. This merely emphasises the need for preserving financial balance and preventing inflationary tendencies from gaining a strong foothold. Exaggerated fears of inflation should not, however, be allowed to interfere with full use of real resources available for development.

61. Government borrowing operations and the credit policies of the State Bank must be geared to providing an expansion of money supply sufficient to create adequate outlets for the community's present disposition to accumulate its savings in monetary form. That portion of current saving which is not directly " ploughed back " by the savers into real investment of their own, seeks its principal outlet in the accumulation of money balances. The accumulation of money balances will occur and potential saving will be fully realised in actual saving only if money creation takes place through the expansion of bank credit.

62. Of course, this does not mean that government borrowing from the banking system should be undertaken without restraint and in unlimited amounts. The appropriate amount of expansion is determined by the principle previously stated, namely, that the public sector's total absorption of private saving, both through borrowing from banks and other means, should be adjusted to the potential margin of private saving over domestically-financed investment. If this principle is observed, the money supply will expand at the appropriate rate, the necessary financial balance of the economy will be preserved, and inflation will be avoided.

63. Once the decision has been reached about the amount of private saving which can prudently be mobilised by the public sector, the debt management and borrowing operations of the Central and Provincial governments must be framed to a large extent in the light of " market conditions "—in conformity with the revealed asset preferences of the private sector. Institutional and private investors other than banks should be encouraged to buy government securities, and yields and maturities of new security offerings should be as far as possible adjusted to attract such purchases. Moreover, life insurance, retirement annuity systems, and other savings schemes should be developed and expanded both as means of encouraging thrift and in order to divert savings into forms less liquid than money. As the institutions develop and as habits change, the market for government securities outside the banking system will broaden.

64. It is also appropriate to weigh the advisability of increasing interest rates on long-term government securities as a possible means of (*a*) encouraging thrift, (b) stimulating the flow of savings into government securities, life insurance and other similar assets and (*c*) exerting some restraint on real estate speculation. The main disadvantage of higher interest rates would be in raising government debt service charges but if short-term interest rates were kept low, this increase would be small.

65. Since changes in habits with respect to the forms in which the private sector accumulates its savings will be gradual, the Central and Provincial Governments although taking active measures to broaden the non-bank market for their securities, must continue for some years to rely chiefly on the banking system as a source of finance. Expansion of credit, both by the commercial banks and the State Bank, is essential if the saving potential is to be fully and effectively channelled into productive uses. No useful purpose is served by pressing the commercial banks to purchase long-term securities. To the extent that the Government depends upon bank borrowing, it is far better to issue short-term obligations suited to their liquidity requirements. The interest rate on short-term securities should be kept low.

66. In this situation, the policies of the State Bank should necessarily be oriented towards facilitating credit expansion to the full extent that this is compatible with the avoidance of serious price inflation. So long as the Government's borrowing programme does not outrun the real availability of private saving, there will be no conflict between the State Bank's responsibility for assisting government financing operations by expanding credit, and its responsibility for protecting the purchasing power of the currency.

67. The financing of government expenditures through borrowing from the banking system is sometimes referred to as " deficit finance ". Under a different usage, this term is limited to government borrowing from the central bank. The preceding analysis of the availability of resources has demonstrated that, under either definition, deficit finance, within limits indicated above, is a sound and necessary instrument of government finance in the present phase of economic and financial development. Private saving potential exceeds the private investment which can at present be fruitfully undertaken. This surplus must be absorbed by the public sector to achieve full and effective utilisation of the real resources available for development purposes. Because the private sector desires to accumulate a considerable portion of its savings in the form of currency and bank deposits, the banking system must serve as intermediary by creating the desired amounts of additional currency and deposits. The chief means of doing so is government borrowing from the banking system. Since currency bulks large in relation to bank deposits, the State Bank, as well as the commercial banks, must play a substantial direct role in absorbing government securities. These operations do not become inflationary unless the volume of bank-financed government expenditure results in a rate of expansion of currency and bank deposits which outruns the public's desire to save in these forms.

## Chapter 9

# PUBLIC SAVING

1. We have noted in the preceding Chapter that we use the term public saving to mean the excess of public gross income over public expenditure for non-development purposes. In this chapter we discuss our estimate of public saving at greater length. As the objective of the Plan is to use the resource potential as fully and effectively as possible, it is necessary in estimates of public saving to assume that measures which are being taken to increase the proceeds from taxation will be continued and intensified and that such other steps as may appear to be feasible will be taken. We recommend some broad measures to strengthen tax administration, improve the tax structure, and increase some tax rates. Similarly, we stress the need for economy in non-development expenditure generally, and in certain fields we suggest that expenditure should be held at existing levels until conditions become favourable for reducing it. In estimating future public saving, we have taken the past trends in revenues and non-development expenditures into consideration, and assumed appropriate increases due to measures for increasing the revenue.

## REVENUES

2. The Central Government revenue receipts increased by 78 per cent and tax receipts by 67 per cent between 1948-49 and 1954-55. Table 1 gives a summary statement of Central Government revenues. It includes receipts into the Railways and Post and Telegraph depreciation and reserve funds but otherwise it is merely a readjusted layout of the normal budget classifications.

TABLE 1

*Revenues of the Central Government*

(Million rupees)

| | Revenue 1948-49 (Accounts) | Revenue 1954-55 (P.A.) | Per cent increase over 1954-55 |
|---|---|---|---|
| I. Taxes (total) ... ... ... ... ... ... | 538·5 | 896·8 | 67 |
| Customs ... ... ... ... ... ... | 329·2 | 416·0 | |
| Central excise duties ... ... ... ... ... | 53·4 | 115·4 | |
| Corporation and Income tax ... ... ... ... | 65·8 | 193·4 | |
| Sales tax ... ... ... ... ... ... | 41·7 | 105·9 | |
| Salt ... ... ... ... ... ... | 37·6 | 22·0 | |
| Refugee tax ... ... ... ... ... ... | ... | 21·5 | |
| Other heads ... ... ... ... ... ... | 10·8 | 22·6 | |
| II. Revenue from public undertakings (total) ... ... ... | 53·2 | 150·9 | 184 |
| Railways (net) ... ... ... ... ... | 33·4 | 61·8 | |
| P. & T. (net) ... ... ... ... ... ... | 2·5 | 5·4 | |
| Receipts from Railways and P. & T. Depreciation and Reserve Funds ... ... ... | 20·3 | 65·9 | |
| Opium (net) ... ... ... ... ... | ·3 | ... | |
| Currency and Mint (net) ... ... ... ... ... | 3·6 | 17·6 | |
| Irrigation (net) ... ... ... ... ... ... | ·3 | ·2 | |
| III. Other revenues (total) ... ... ... ... ... | 92·8 | 171·6 | 85 |
| Civil administration ... ... ... ... ... | 7·1 | 17·4 | |
| Debt services—interest ... ... ... ... ... | 49·4 | 80·4 | |
| Defence services ... ... ... ... ... | 21·7 | 39·9 | |
| Other receipts ... ... ... ... ... | 14·6 | 33·9 | |
| Total revenue receipts ... | 684·5 | 1219·3 | 78 |

3. It will be noticed that custom revenues have diminished while direct taxes on income have increased in importance. Revenue from public undertakings has increased by nearly 184 per cent. The tax revenues of the Central Government are now much more broadly based than in 1948-49. Their excessive dependence on customs has diminished, and an element of elasticity has been acquired by the tax system. These changes reflect the structural changes which are under way in the economy.

4. The total revenues of the Provincial and State Governments increased from Rs. 497.8 million in 1948-49 to Rs. 751.9 million (Revised Estimates) in 1954-55, representing a rise of 50 per cent. This is shown in Table 2.

### TABLE 2

### *Consolidated Revenues of East Pakistan and West Pakistan* 1948—55

(Million rupees)

| | Revenue 1948-49 (Accounts) | Revenue 1954-55 (R.E.) | Per cent increase over 1954-55 |
|---|---|---|---|
| I. TAXES SHARED : | 106·2 | 187·2 | 76 |
| Customs | 63·5 | 40·7 | |
| Central excise debts | ... | 29·7 | |
| Income tax | 4·8 | 37·1 | |
| Sales tax | 37·9 | 79·7 | |
| II. OTHER TAXES : | 151·3 | 191·6 | 26 |
| Agricultural income tax | 9·4 | 10·2 | |
| Land revenue | 65·1 | 98·2 | |
| Provincial excise | 23·7 | 18·0 | |
| Stamps | 24·0 | 27·1 | |
| Registration | 5·8 | 6·0 | |
| Urban immovable property tax | ·9 | 4·0 | |
| Other heads | 22·4 | 28·1 | |
| III. REVENUE FROM PUBLIC UTILITIES AND STATE UNDERTAKINGS : | 78·9 | 88·4 | 11 |
| Irrigation (net) | 76·8 | 69·8 | |
| Electricity (net) | 1·2 | 12·6 | |
| Government transport (net) | 0·9 | 6·0 | |
| IV. OTHER REVENUES : | 144·1 | 258·5 | 80 |
| Forest | 13·7 | 22·6 | |
| Interest receipts | 6·2 | 18·0 | |
| Civil administration | 36·7 | 76·3 | |
| Sale of land | 16·9 | 23·1 | |
| Other receipts | 70·6 | 118·5 | |
| V. ANNUAL STATUTORY SUBVENTION TO N.-W. F. P. | 10·0 | 12·5 | 25 |
| Total Revenue receipts | 490·5 | 738·2 | 50 |

5. Provincial revenues remained largely stationary during the first three years after partition and then increased as the Korean War boom gathered momentum. The award of Sir Jeremy Raisman came when the boom was subsiding. Since then there has been a steady increase in revenues with appreciable aid from the commercial departments of electricity and forests. The receipts of electricity increased from Rs. 1·2 million in 1949 to Rs. 12·6 million in 1955, government transport from Rs. 13·7 million to Rs. 22·6 million, and of civil administration from Rs. 36·7 million to Rs. 76·3 million. Land revenue receipts have increased because of additional land brought under cultivation, acquisition of land in East Pakistan, higher rent from crown lands and *ad hoc* increases in certain parts of West Pakistan. Land revenue and irrigation receipts, once the main-stay of provincial finances, have, however, been declining in relative importance. This is partly because these charges have not been adjusted to the post-war price level. On the other hand, receipts from the sale of land increased from Rs. 16·9 million to Rs. 23·1 million during the period. Considerable increase has been recorded under entertainment and motor vehicle taxes. Agricultural income-tax has fallen because of the acquisition of land rights in East Pakistan and the settlement of refugees in the former Punjab and Bahawalpur. Excise duty proceeds have fallen as a result of prohibition.

6. Increases in total public revenues have been large and significant. Forecasts of increases of this order would not have been possible in the first two or three years of independence. They are attributable to the normal growth of the economy, improvement of the administration, particularly of the tax-collecting machinery, and above all to the beneficial effects of development programmes. No important increases have been made in the rates of taxation. On the contrary, substantial concessions have been allowed in direct taxes, and realisations from estate duty have been almost negligible.

7. We consider that our economic growth is likely to gain further momentum during the Plan period. Programmes of economic development have begun to acquire significant proportions only recently. In the public sector sizeable programmes began from 1953 and had necessarily to be concerned more with the provision of basic services such as roads, irrigation, power, and buildings, which do not yield immediate increases in national income. The industrial projects of the Pakistan Industrial Development Corporation have started coming into production only recently. The private sector received a stimulus in 1952 with the curtailment of imports, but its undertakings began reaching production stages only recently. The full effects of private as well as public investments on the economy and the taxation receipts are yet to be realised. A high-level development programme persistently pursued must lead to a steady growth in prosperity, in which public revenues will share.

8. Although revenues have been buoyant in the past it must not be inferred that the limits of taxable capacity have been reached. We feel that taxation revenues can be increased further by improvements in the tax assessing and collecting machinery as well as by suitable changes in the taxation pattern. This is shown by the fact that at present only about 6 to 7 per cent of the national income passes to the public sector in the form of tax revenues. It is extremely important that this proportion should increase in the future so that the foundations of a continuing process of economic development can be firmly laid.

9. Under present budgetary arrangements both the Central and Provincial Governments have separate revenue and capital budgets. This helps to ensure that normal revenues of the Government are maintained at a level sufficient to meet normal administrative expenditures, and so maintain public confidence in the fiscal administration of the Government. But, although sound in this sense, it must tend to discourage in practice the employment of any part of the normal receipts of the Government on development except to the extent to which, under the prevailing budgetary classification, some of the investment programme is included in the budget as a part of normal government responsibility, such as

roads. As prosperity grows, it would be desirable that receipts from taxation and other normal sources should be regarded as a growing means for financing the programme of development. Changes in taxation should be governed not by deficits and surpluses in the revenue budget, but by the consequences they would produce on the national economy, and the incentives they would provide for economic enterprise. We appreciate that political considerations cannot be excluded from fiscal policies, but the need for current revenue to finance economic development should be recognised, and this principle increasingly incorporated in the budgetary system. At present, in the event of a surplus, the over-riding pressure would probably be for relief of one kind or another, even though, as a rule, expenditures on productive investments are more beneficial to the people, except when remissions provide new or stronger incentives for development. We do not recommend that any changes should be made immediately in the present budgetary system, which serves an important purpose, but we do think that a change should be considered as soon as government revenues begin to show greater buoyancy, and there is a general awareness in the country of the economic implications of the various alteranative policies open to the government.

10. Tax revenues, which constitute two-thirds of revenue receipts, should record substantial increases during the Plan period. Central excise duties will increase with the increase in production. The production of sugar is expected to increase by over 100 per cent and cotton textiles by over 25 per cent. Receipts from sales tax also should increase with the growth of consumption. Increases should also be recorded under public utilities, state undertakings, and other items. As to railways, there is no doubt that economic development will lead to better utilisation of capacity. The basis of financial relationship between railways and general revenues is an open question, but whatever the decision, the total resources available to Government would not be affected. The contribution of Posts and Telegraphs to government revenues should increase with the steady expansion of the telecommunications systems.

11. We make below some suggestions in very broad terms about possible changes in taxation to bring about an increase in revenues.

## CENTRAL TAXES

12. In the central field, possibilities of wholly new taxes are limited, and the main changes can therefore be only in rates, concessions, and administration.

### Excise duties

13. Now that the Government have embarked on economic development, the rates of excise duty should be employed to canalise a substantial proportion of development proceeds back to investment. As the prices of different commodities tend to decline with increased production during the Plan period, the rates of excise duty should be increased suitably, except in special cases where it is considered necessary that the full benefit of reduced prices should be passed on to the consumer. By this means either the whole or at least a large proportion of the gain would accrue to the State to be employed for financing further development.

### Income tax

14. We consider that the rates of income-tax and the exemptions granted to industry should be reviewed, particularly in the light of incentives necessary to secure the desired distribution of physical resources. The main features of existing concessions to industry are as follows :

(*a*) The profits of new industrial undertakings are exempt from income-tax and super-tax to the extent of 5 per cent of the capital investment. The exemption may be taken for any five successive years during the period March 31, 1948 to March 31, 1956.

(*b*) A person subscribing to the capital of a new industrial undertaking is exempt from the payment of income tax and super-tax on the amount of share capital subscribed by him, to the extent of 20 per cent of the first one lakh rupees of his total income *plus* 10 per cent of his income above one lakh rupees.

(*c*) Special depreciation allowances were provided in respect of plant and machinery installed during the period April 1, 1946 and March 31, 1955.

15. We consider that a stage has been reached in the economic development of the country when concessions for stimulating investments should be granted only on a selective basis. To illustrate, substantial additional investments in cotton textiles will not be needed for some time, and special concessions for new textile investments are therefore unnecessary. It is generally known that several textile and other industrial concerns have made tremendous profits. Due to scarcity of imported consumer goods, large incentives have in fact been available to investors and promoters of industries. Considering both the large profits earned openly and clandestinely and the substantial concessions granted on these swollen profits, it appears to be a fair conclusion that the public revenues have not obtained a fair share of the betterment and prosperity which have attended the development of these industries. On the other hand, there would be some sections of industry where the weight of taxation is retarding development. A pattern of taxation in which customs, excise, and sales taxes are woven together can develop burdensome features. For instance, raw or semi-manufactured materials of an industry may be subject to heavy taxation because they pass through a number of hands. We consider that the purpose of tax concessions would be better served if they were confined to selected investments and related to the needs of each case. Industrial undertakings may be divided into different categories according to (*a*) their importance to the development programme and (*b*) their need for tax concessions to provide inducement to expansion. Resources for development are limited, and we do not want an indiscriminate industrial expansion, but a balanced extension in those fields which will contribute most effectively to economic development.

**Estate duty**

16. The Estate Duty Act passed in 1950 provides for taxation of the estate of a deceased person at graduated rates, with a minimum exemption limit of Rs. 1 lakh. Most property invested in large industrial undertakings is, however, exempt from duty. The rates are shown in Table 3 below.

TABLE 3

*Rates of Estate Duty*, 1954-55

(Lakhs of rupees)

| *Value of property* | *Rate per cent of duty* |
|---|---|
| Not exceeding 1 | 0 |
| 1-2 | 6 |
| 2-3 | 8 |
| 3-4 | 10 |
| 4-5 | 12 |
| 5-6 | 15 |
| 6-8 | 20 |
| 8-10 | 25 |
| 10-20 | 30 |
| Exceeding 20 | 35 |

17. The receipts from this tax have averaged from Rs. 15 to Rs. 20 lakh a year, which is disappointing. The administration and collection of the tax form part of the responsibilities of income tax officers ; it appears that they have been unable to cope with the complex problems which have to be resolved in assessing and collecting the duty. This tax is important as a potentially growing source of revenue, and as an effective weapon in the hands of the Government to promote over a period of time more equitable distribution of income and property, which is one of the main objectives of the Government's social policy. There is a universal demand in the country for effective measures to this end ; a successful policy on estate duty will give general satisfaction.

18. The problems raised by the estate duty are numerous and complex. The administration has first to discover and value the property. The various kinds of properties and the diversity of conditions under which the tax has to be assessed make the administration of the tax extremely difficult. The quality and size of the administrative machinery must be adequate to the size and complexity of the problem. We appreciate that trained and experienced officers are few and far between. Nevertheless, we consider that selected officers of sufficient promise and seniority should be specially trained in the technique and problems of Estate Duty administration and should be stationed in strategic positions at the Centre and in the Provinces. In addition, a corps of relatively younger officers should be trained in this branch of taxation and stationed at strategic places including the headquarters of Assistant Commissioners. The income tax officers who are responsible for discovering and valuing the property, and later for assessing the estate duty, should be responsible for dealing with small cases only. All other cases, should be passed to this corps of specially trained officers. They should have offices where convenient for the disposal of the cases, and deal with them under their own authority. Although all tax officers should be conversant with the estate duty problems, there would be an advantage in having a strategic reserve of specially trained officers. The volume of work may develop a steady flow in a large jurisdiction as a whole, but is likely to be characterised by steep rises and declines in small areas.

19. We suggest that the general principle of granting exemptions on a selective basis is applicable in the case of estate duty. No real purpose is served by granting an exemption in favour of the owners of an industry which is being developed rapidly under ordinary market incentives, or where a stage of optimum development has been reached and resources would be better utilised by diversion elsewhere.

20. Taxation of property at death should be both an important source of public revenue and an instrument for promoting patterns of inheritance which conform to socially accepted norms. When a large estate is distributed among a large number of relatives, in conformity with Islamic principles, it is perhaps appropriate that the effective rate of taxation should be less than when the deceased person has left the bulk of his property to only a few heirs. Preferential treatment of estates which are distributed among many heirs in conformity with Islamic principles can be achieved either through a system of penalties and concessions under the estate tax, or through the replacement of the present estate tax by an inheritance tax levied separately on the property received by each heir. Because this area of taxation raises basic issues of social policy and complex questions of law and administration, we recommend that a committee be appointed to devise methods for greatly strengthening the effectiveness of this tax as asource of revenue and for removing any major discrepancies between the provisions of the present tax and the socially accepted norms about inheritance. Devices sometimes used for tax avoidance, such as gifts *inter vivos* and trust funds, should be taken into account.

## PROVINCIAL TAXES

### Land revenue

21. There seems to have been a progressive decline in the relative burden of land revenue since the last settlements in West Pakistan. The price rises have not been accompanied by any corresponding increases in land revenue. As a proportion of total revenue also the receipts from land revenue have fallen very considerably. It is worth bearing in mind that the share falling to the land-lord is an unduly large proportion of the national product, in many cases as high as 25 per cent of the gross produce, of which only a small portion has to be paid to Government as land revenue. It would seem possible therefore to make increases in land revenue in terms of money, without increasing its real burden as determined at the time of settlement, and with due regard to the increase in the costs of living as well as the costs of production. In some of the former Provinces, land revenue rates were increased in all or some of their areas by *ad hoc* percentages. In addition, it seems necessary to introduce greater flexibility and uniformity in West Pakistan. For instance, the land revenue could well be related to the prices of agricultural commodities, so that revenue is increased during periods of high prices and decreased in periods of low prices. This system prevails in the former Sind to the benefit of public revenues. Adjustments to all price changes would not be justified, but some adjustment would be appropriate when substantial changes take place.

22. We recommend that an *ad hoc* increase should be made in the land revenue rates in places where the settlements are already overdue. The imposition of such an increase can create disparity in assessments between different areas because of widely different dates of the last settlements. This difficulty can be met by a surcharge for equalising the levels of assessment or for reducing the disparity in rates. We suggest that the increase in the land revenue should be imposed as an education cess, the proceeds of which should be shared between the local bodies and the Provincial Governments for expenditure on the education programmes in the Plan. In principle we do not favour the creation of separate cash pockets in the Treasury, but the imposition of an increase in land revenue would be more acceptable to the people if joined to the education programme. The message of education is spreading in cities and villages, and capturing the imagination of masses. We should capitalise on it and raise new resources to meet the rising tide of demand for education facilities.

### Water rates

23. There seems to be some scope for an increase in the water rates charged for irrigation facilities. Water rates were fixed in many cases as far back as 1934 when the prices of agricultural produce were much lower. There is therefore a case for raising the rates to a level at which, taking all factors duly into consideration, their burden would not be greater than at the time of their original levy.

24. The burden of land revenue and water rates varies widely among the former provinces of West Pakistan, and the question of introducing some uniform rates now that One Unit has been established will presumably receive consideration. It is roughly estimated that a cultivator in the former Sind pays a total of Rs. 30 per acre under cotton as compared with Rs. 11 in the former Punjab on account of land revenue, water rate, and development cess.

25. There is a strong case for concessional water rates in many areas. In certain areas in West Pakistan the holdings have become extremely small due to the settlement of refugees. The costs of production as well as of living have increased. In many places

lands have been affected by salinity and water-logging. The case for a general increase is not however materially affected. A surcharge on water rates was in fact levied in the Punjab after partition and continued for two years.

### Taxes on property

26. Conditions are arising in which property taxes could be developed as an important and increasing source of revenue for the Provincial Governments and local bodies. These taxes would fall into three categories : ordinary taxes on property in municipalities, levied as a proportion of annual rental value ; taxes on transfers of property levied, as at present, in the form of stamp duty and registration fees ; and betterment taxes, the principle of which has been recognised in some cases, although the taxes have yet to be developed fully and applied universally.

27. For lack of data we have not dealt with municipal resources in this report. We hold strongly, however, that local bodies should be guided and assisted by the Government to operate their institutions, and perform their services, efficiently. They should be prepared to participate effectively in the development programme and should become efficient agencies for the provision of social services within their respective jurisdictions. To enable them to reach this position they need sources of finance adequate to their increasing responsibilities. We consider that property taxes should be regarded as one of the most important of such sources. Most municipalities in Pakistan levy this tax, but arrangements for its assessment and collection are not satisfactory. Rental values on which the tax is based are not revised sufficiently frequently to incorporate fully the increases which are occurring due to urban growth and development. Assessment is not always made scientifically, and collections are often in arrears. No steps have been taken to develop a corps of men trained in property valuation. The rates show large variation from place to place without apparent justification.

28. We suggest the following steps :

(*a*) All municipalities should impose a property tax.

(*b*) A cadre of property tax officers should be organised by the Provincial Governments. They should be trained in the principles and practice of property taxation, and given responsibility for the assessment of property tax. The municipalities should be required to employ these trained officers, their services being obtained on deputation from the Government. Another alternative, which has been recommended by the Indian Taxation Inquiry Commission, and which is embodied in the U.K. local rating system, would be to make such officers under the Government responsible for assessment, the municipalities being responsible for collection only. These officers would be responsible for all assessments needed for property taxes of all kinds. The assessments made by them should be admitted by all Government Departments which require such information for any purpose. The intervals at which assessments are to be made should be more frequent for areas undergoing rapid development.

### Transfer of property tax

29. Roughly the stamp duty represents 3 per cent, and the registration fee 0·5 per cent of the transfer value of the property. These rates are in our view very low, and should be increased substantially. The possibility should be explored of appropriating for the

Government, through transfer taxes, a part of the increase in value where the increase is not attributable to the effort of the seller, and where no betterment taxes have been paid by him. The taxes on transfers of property will then consist of two elements :

(*a*) Ordinary taxes of a general character applicable in all cases, including stamp duty and registration fee ;

(*b*) An additional tax in respect of the unearned increment in the property value applicable in specific localities.

30. We suggest that the tax when related to the value of the property should be based either on the transfer value or the assessed value, if an assessment has been made by a duly appointed property tax officer, whichever is greater. This seems desirable to ensure the recovery of tax on the actual value of the property instead of the value stated in the transfer deed, which is frequently under-stated in order to employ hidden funds representing the fruits of illicit operations.

**Betterment taxes**

31. The Government and local bodies are undertaking a large number of projects, particularly those for irrigation and town improvement, which have direct impacts on property values. As the result of a steady programme of development year after year property values are found to increase in some cases because of specific works carried out by the Government and in other cases due to general prosperity, urbanisation, growth of trade, and the development of transport. There are strong reasons for the Government to appropriate apart of increments in property values for financing public development programmes. Relationship between the benefits derived and the works executed at public expense provides a clear justification for the levy of betterment taxes. Those who derive the main benefit should pay the cost of works to enable the Government to intensify their development operations. Such increments are a windfall for the owners and the benefit can be shared between them and the Government. By a system of suitable exemptions, betterment levies can be used as an instrument for promoting the social objective of more equitable distribution of property and income.

32. We recommend that the following principles should be considered in this connection :

(*a*) In the case of irrigation works the Government should consider acquiring all private lands at pre-development prices subject to suitable exemption limits. The principle of this proposal has been recognised by the Government in the Thal development area, where it has been provided that a betterment tax would be imposed, and the landowners would be free to surrender to Government appropriate portions of their land in lieu of the tax.

(*b*) In any case, whether the acquisition of land is considered feasible or not, a betterment tax should be imposed related to the amount of the benefit received. The sharing of the benefit on a 50-50 basis between the Government and the owner should be generally acceptable, although a higher recovery by the Government would be justified. The taxes would be collected in recurrent, annual payments rather than a single lump sum.

(*c*) The same principle should be applied in the case of town improvement works, the term ' improvement ' being interpreted in a broad sense, inclusive of slum clearance, widening of streets, development or re-development, and the construction of satellite towns.

33. The case for a betterment tax to be applied wherever the appreciation of property value is a direct product of specific public improvements appears to us incontestable, and such taxation should be extended at once. Even when such direct relationship between specific works and the resulting improvements in property values does not exist, the case for an increase in taxation remains valid on moral and practical grounds. Whether, in such cases, a betterment tax is the most suitable fiscal instrument to mobilise for public purposes a portion of the unearned increment resulting from general development and progress, requires careful investigation and study. Meanwhile, however, it is of the utmost importance that land revenues, property taxes, and water rates should be promptly readjusted to reflect present values. The lag in these taxes during the wartime and postwar inflation, and the many concessions in income and super-tax mean that the revenue system, far from capturing unearned increment, has actually reduced the real levy on many tax payers as their wealth has increased.

### Property tax Committee

34. A large number of technical and administrative issues as well as important issues of principles would arise in connection with property taxes, including betterment taxes. We recommend that a committee should be appointed to consider them and to make recommendations to the Government. The circumstances in which betterment taxes should be imposed, the rates of taxation, the exemptions to be granted, and the procedure and amounts of recoveries would be some of the important issues in connection with such taxes. The problem of improving and co-ordinting property taxes would be another important problem for consideration. It is necessary to ensure that the taxes imposed on property should not generate dis-incentives to improvements or to new buildings of a socially productive character. The Committee should also consider the general question of exemptions or variations in the rates in pursuance of the social objective of more equitable distribution of income and property. In some municipalities, exemptions are granted up to certain limits in respect of houses which are in the occupation of the owners ; the question of extending this principle should be considered. Such questions as formulation of principles of improving and co-ordinating the property taxation structure, the scheme of rates and exemptions, and the methods of recoveries need to be considered fully with a view to the development of such taxes as one of the growing sources of revenues for the Provincial Governments and local bodies. It may be that the further responsibilities to be assumed in the Plan period by the local bodies will not be extensive, but there is no doubt that they will be considerably increased and intensified in subsequent periods. Improvement of the property tax structure would be a preliminary stage for preparing the local bodies to discharge the large responsibilities which are sure to fall on them in due course.

### Miscellaneous taxes

35. There is considerable lack of uniformity in the rates of minor taxes in different parts of the country. Complete uniformity is neither necessary nor always justifiable, but in the integrated province of West Pakistan a large degree of uniformity will be needed where the varying incidence of taxation is not supported by clear economic reasons.

36. The tax on urban immovable property varies from 10 per cent in the former Punjab, and 7·5 per cent in the former North West Frontier Province to 2·5 to 5 per cent in former Sind. There is obviously a case for some measure of levelling, which should present no difficulties in view of the rising values of properties.

37. The entertainment tax in the former Sind and North-West Frontier Province amounts to 50 per cent of the admission charge, and there is no reason for a lower rate in the former Punjab ; it is a minor but a growing source of revenue which should be fully

exploited. Similarly, there is room for a larger degree of uniformity in the rates of motor vehicles tax which should bring a substantial increase in the revenue with prospects of further increase in the future. We were not able to examine the rates of minor taxes in East Pakistan.

## Local Government

38. In the course of our work we made an attempt at an assessment of the resources and liabilities of the local bodies in the country. The information available to us was scanty, and the time and staff resources did not permit us to make an examination which would have enabled us to make any recommendations. Some of the important development programmes of the local bodies are financed by grants and loans from the Central and Provincial Governments, and to that extent their programmes are included in the Plan. They are represented by important projects relating to Chittagong and Karachi harbours, city improvement trusts, town plans, and sewerage and water supply facilities. They do not, however, exhaust the responsibilities of the local bodies which are wide and varied, and which we would like to see integrated and expanded in the Plan period, though the total amount involved is not so large as to make any important difference to the assessment of resources or to the Plan in general. We have no doubt that the activities of local bodies will grow, and hope that their resources and requirements will be adequately included in future plans.

39. In making our recommendations about betterment taxes we have been influenced by the consideration that increases in property values provide the prospect of enlarging revenue sources, and that this potentiality should be fully exploited. The recommendations we have made for establishing a corps of trained property tax officers are a necessary prerequisite to making this tax an important part of the taxation structure. Local bodies would be chief beneficiaries of this tax. We have also recommended that increases in land revenues should be realised in the form of an education tax, the proceeds of which should be shared between the Provincial Governments and local bodies for financing the improvement and expansion of education facilities as proposed in the Plan. With the implementation of these recommendations, and if the prospects of increased revenues offered by rising property values are utilised, the local bodies would be able to develop their finances considerably and be in a position to play more effectively their part in promoting the welfare of the people.

## Non-development expenditure

40. To make the largest possible amount available for development it is necessary to exercise the strictest control over non-development expenditures which have a tendency to grow. In reviewing the course of non-development expenditures for the period 1948—55, we find that expenditure on general administrative services or, in other words, on establishment and other public overhead costs* has increased by nearly 108 per cent in the Central Government, 53 per cent in East Pakistan and by 21 per cent in West Pakistan. The expenditure on these services is indeed very large when considered in relation to tax revenues or even as a percentage of total expenditure charged to the revenue budget. This is shown in Table 4.

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*This includes direct demands on revenues, general administration, police, and other departments such as audit, administration of justice, jails and convict settlements, ports and pilotage, and miscellaneous departments.

### TABLE 4

*Expenditure on establishment and other public overhead costs in relation to tax revenues and current expenditures 1954—55*

( Million rupees )

| | *Expenditure on general administrative services | Total expenditures charged to revenues | Tax revenues | (1) as percentage of (2) | (1) as percentage of (3) |
|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) |
| Central Government ... ... | 193 | 1180 | 863 | 16 | 22 |
| East Pakistan ... ... ... | 112 | 257 | 176 | 44 | 64 |
| West Pakistan ... ... ... | 165 | 483 | 203 | 34 | 81 |

41. The scope for economies in non-development expenditure will have to be explored in each different field, but in any event the Central Government and the Provinces should try to make more effective use of their present establishments. A great deal of pressure is naturally developing for providing employment to the graduates of schools and universities. This demand would be best satisfied by increasing the tempo of development activities in the country. The creation of jobs under the Government, except when they are needed for development, increases the Government liabilities and increases the burden of unproductive expenditures.

42. In West Pakistan the integration of different provinces into one unit has created a situation where some of the staff are surplus. Thus for some time at least the existing establishment should be adequate in some categories to assume the additional responsibilities and functions which will devolve upon it as the Plan gets under way.

43. These observations on the necessity for reducing expenditure on establishment and public overhead do not mean that we expect any net reduction in total non-developmental expenditures during the Plan period. Some increase will occur due to normal causes, or because of serious deficiencies in certain categories, particularly those of a technical character, but endeavours should be made to meet the increases by economies as far as possible. There are certain important departments where it is specially necessary to hold down expenditure. For other activities we have assumed an increase of 5 to 10 per cent in the Plan period, but the increase can be kept within these limits only if special care is exercised by the controlling authorities. We will first deal with the departments in which it seems necessary to prevent any increase in expenditure and eventually to effect reductions.

**Police**

44. Table 5 shows the progress of expenditure on Police, both in the Centre and Provinces.

### TABLE 5

*Combined expenditure on police during* 1948—55.

(Million rupees)

| Fiscal year ending | 1949 | 1950 | 1951 | 1952 | 1953 | 1954 | 1955 | Total 1949—55 |
|---|---|---|---|---|---|---|---|---|
| | 89·8 | 99·1 | 111·0 | 128·6 | 135·4 | 135·4 | 133·8 | 833·1 |

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*This includes direct demands on revenues, general administration, police, and other departments such as audit, administration of justice, jails and convict settlements, ports and pilotage, and miscellaneous departments.

45. The expenditure increased by about 50 per cent from 1949 to 1953, of which expenditure on border police was only a small proportion ; the largest increases occurred in East Pakistan, Punjab, North-West Frontier Province and the Centre where the increase was due largely to its share of the cost of the Frontier constabulary.

46. Law and order situation insofar as defiance of authority is concerned, has shown a distinct improvement since independence. The people are generally law-abiding, and even the tribal territories, despite organised efforts to instigate them, have been remarkably peaceful, cooperative, and loyal. The extension of Village Aid and urban community development will strengthen and deepen the climate of cooperation and good-will. The new emphasis in public administration on welfare should bring about greater trust and understanding between the people and the administration. These developments will steadily create conditions favourable for reduced expenditure on police, assisted by efforts to reach higher standards of efficiency by improved training and better service amenities including family accommodation for the members of the force.

47. Our review of expenditure on police since 1949 shows that after increasing by more than 50 per cent between 1949 and 1953 it ceased to show any further increase. This is perhaps at least in part a reflection of the improvement that has occurred in law and order and the recognition of the need to check further increases. As the tempo of the development increases and the welfare activities of the State are extended during the Plan period, conditions would be favourable for reviewing expenditure on the police with a view to reducing its size and diverting the resources into productive channels.

**Frontier watch and ward**

48. Table 6 shows the progress of expenditure under this head since independence.

TABLE 6

*Expenditure on Frontier Watch and Ward* 1948—55.

(Million rupees)

| Fiscal year ending | 1949 | 1950 | 1951 | 1952 | 1953 | 1954 | 1955 | Total 1948—55 |
|---|---|---|---|---|---|---|---|---|
| | 35·4 | 43·2 | 47·7 | 54·2 | 57·6 | 48·6 | 52·6 | 338·3 |

49. The Government have been extending social services for the Tribal Areas, and special provision has been made in the Plan for this purpose. The conditions should, therefore, change substantially to make possible a review of Government policies towards expenditure on the watch and ward establishment. It is reported that some of the levies, particularly in Baluchistan, have purely a symbolic importance. The possibilities of making some better use of these forces by suitable training and equipment is worth considering ; it might pay handsome dividends. The determination of the Government to promote the welfare of the tribal people in their charge would be convincingly demonstrated, and the

way would be paved for transferring some manpower to more productive work. We consider that as development activities begin to make a firm impression on the people of the Tribal Areas, the entire policy in respect of watch and ward establishment should be reviewed by a special committee. We should make it clear that we have not taken into consideration the repercussions of provocative campaigns from across the border ; we fully appreciate that they would have a large bearing on the problem.

### Defence

50. The magnitude of the resources absorbed by our defence programme is shown by the fact that while a sum of 4,200 million rupees is estimated to be available from domestic sources for financing the development programme in the public sector, defence will require 4,775 million rupees from the same sources. During 1955-56, expenditure on defence is expected to be only slightly less than the total net tax revenues of the Central Government.

51. In comparing the burden of defence expenditure in Pakistan with that in countries such as India, Australia, Ceylon, Thailand and Turkey, we find that whatever the standard adopted to compare their relative positions, whether it be the amount of expenditure *per capita* or the ratio between defence expenditure and national income—the relative size of defence expenditure in Pakistan appears to be among the largest. The extent of the drain upon available resources can be fully appreciated only if it is considered that a certain amount of *per capita* defence expenditure or a certain percentage of national income devoted to defence means a much heavier burden on the smaller resources of a country such as this than upon those of a relatively more prosperous country such as Australia.

52. The underlying capability of a country to organise its defence is directly related to its economic, industrial, and scientific base. Defence expenditure, while adding to military strength, reduces the resources for economic growth and delays the expansion and development of the very base from which the quality and strength of defence potential are derived.

53. Because security can never be absolute, we believe that immediate strategic requirements must be subjected to a continuing objective reappraisal in the light of changing conditions, so that defence expenditures can be held at the minimum level compatible with security ; unless this is done, we shall needlessly restrict and delay the growth of the economic and industrial base upon which the country's strength must ultimately depend.

54. In the efficiency of their organisation, the armed services set an example which makes an important contribution to the national life. Nevertheless, we cannot overlook the fact that these two problems—the grave responsibility of providing for national security and the difficult but urgent task of raising the resources and stretching them over competing development needs—should continue to be considered together, to strike and preserve a wise balance between the two fields.

### Estimate of public saving

55. We have mentioned earlier that public saving consists of the excess of the public sector's gross revenues over non-development expenditures. Public saving, therefore, represents that margin of resources made available for development spending from revenue sources. We have made estimates of what the public sector may be expected to save during the Plan period. These estimates are shown in Table 7.

### TABLE 7

## PUBLIC SAVING

*Consolidated revenues and non-development expenditures of Central and Provincial Governments, 1955—60.*

(Million rupees at 1955, post-devaluation purchasing power).

| Items | Estimates | |
|---|---|---|
| | Total 1955—60 | Annual average |
| **REVENUES :** | | |
| 1. Taxes ... ... ... ... ... ... ... ... | 86,00 | 17,20 |
| 2. Revenue from state enterprises ... ... ... ... ... | 14,85 | 2,97 |
| 3. Other revenues ... ... ... ... ... ... ... | 14,55 | 2,91 |
| Total ... | 1,15,40 | 23,08 |
| **NON-DEVELOPMENT EXPENDITURE :** | | |
| 1. General administrative services ... ... ... ... ... | 24,60 | 4,92 |
| 2. Economic services ... ... ... ... ... ... | 7,30 | 1,46 |
| 3. Social services ... ... ... ... ... ... ... | 11,60 | 2,32 |
| 4. Debt services ... ... ... ... ... ... ... | 5,00 | 1,00 |
| 5. Defence ... ... ... ... ... ... ... ... | 47,75 | 9,55 |
| 6. Miscellaneous ... ... ... ... ... ... ... | 4,15 | 83 |
| Total ... | 1,00,40 | 20,08 |
| **PUBLIC SAVING :** | | |
| (Revenue *minus* non-development expenditures) ... ... ... ... | 15,00 | 3,00 |

56. Table 7 shows consolidated revenues and non-development expenditures of the Central and Provincial Governments during 1955-60 and the net balance which represents public saving. For the Plan period as a whole, revenues are estimated at 11,540 million rupees and non-development expenditure at 10,040 million rupees which will be available for development purposes.

57. The figures shown in Table 7 involved both a consolidation and a reclassification of items shown in the published statements of receipts and disbursements issued by the Central and Provincial Governments, and the elimination of all inter-government transactions. The resulting figures show governmental receipts from, and disbursement to, the private sector (including local government bodies) and foreign countries.

58. The re-arrangement of budgetary items needed for projecting the real resources which the economy can provide for the development programme was necessitated by the very nature of our task, since the conventional distinction between the revenue and capital budget does not correspond to the distinction between the development and non-development expenditures which had to be made for the purpose of the Plan.

59. It will be clear that public saving, as we have used this term, is not the same thing as a surplus in the revenue budget. Nevertheless, by reversing the re-arrangements and adjustments of budget figures which we have made for purposes of the Plan, it is possible to translate our projections into the familiar budgetary pattern.

60. In Table 7, revenues include tax receipts, receipts from state enterprises, depreciation accruals of public enterprises, and the customs revenues which are segregated in the budget as counterpart funds. Depreciation accruals have been included in revenues because development expenditures included in the Plan are treated on a gross basis, and include outlays for replacement as well as for expansion of physical assets. Non-development expenditures cover the outlays falling outside the development programme. Thus they represent broadly what is normally charged to the revenue budget with the following modifications. First, those developmental items in the revenue budget which are included in the Plan, have been removed. Second, certain items such as expenditures on defence, which are either charged to the capital budget or met from counterpart funds, and loans to Government servants, which are included in the capital budget although not a part of the development programme, have been included among non-development expenditures.

61. In Table 7, revenues are classified under three main headings : taxes, revenues from state enterprises, and other revenues. Non-development expenditure is classified under general administrative services, economic services, social services, debt services, defence, and miscellaneous. General administrative services represent government departmental and secretarial establishment. Economic and social services include the expenditure on the public overhead services in these fields, as well as the recurring expenditure on schemes completed prior to 1955-56.

62. In making our estimates of revenues and non-development expenditures we have analysed each item separately. We have made detailed calculations of the probable increase in revenue from each tax, from state undertakings and from other revenues. Revenues will rise as a result of both growing national income and of the adoption of measures to raise more resources through taxation. We estimate that by 1959-60, the final year of the Plan, total government revenues will be roughly 47 to 49 per cent higher than in 1954-55. An increase of this order can reasonably be expected as a result of the considerable development programme which the nation has been pursuing for the last few years and which will be intensified in future years. The actual increase might well exceed 50 per cent in a period of five years. In estimating non-development expenditure, we have assumed that efforts will be made to halt the growth in expenditures wherever necessary and practicable. In other branches, however, we have made an allowance for increases in expenditures, varying from 5 to 10 per cent.

# CHAPTER 10

# CREDIT, BANKING, AND INSURANCE

## INTRODUCTORY

1. In modern economic life, credit has developed into a most important service, with a complex and widespread organisation. High levels of production and living are inconceivable without an efficient credit organisation, and the development of credit is, therefore, a necessary part of a development programme. The considerations that hold good for programmes of productive sectors are equally applicable to those of credit. Development of production has to be planned, its goals have to be defined, and its pattern and pace have to be regulated. Credit must similarly be planned and promoted with definite targets in view. Its irregular growth or lack of growth would produce maladjustments and impediments in the process of economic development.

2. Credit policies play a vital role in economic development. A monetary policy is an essential part of the general economic and financial policy of the State. It plays an important role in promoting capital formation, in controlling speculation, in maintaining a balance between requirements and availabilities, and in directing physical resources into desired channels. Credit institutions collect the savings of the people, and make them available for trade and development. By a wise allocation of resources they can assist the planned development of the economy. With the expansion of production and marketing, the economy will require a larger money supply to sustain increasing economic activity, but without proper planning credit may not expand sufficiently to meet the requirements of the economy. In a developing economy a well-directed credit supply is a stimulant to growth, and creates a favourable climate for capital formation, though undue credit expansion can become a source of inflationary pressures. Banking is still under-developed in this country, and the banks usually follow conservative credit policies : the possibilities of excessive credit expansion are remote. The State Bank maintains supervision to check undue expansion of credit for speculative purposes.

3. In this Chapter we deal with central, commercial and industrial banking, and with the provision of insurance. Co-operative and rural banking are discussed in the Chapter on Rural Credit.

## BANKING

### Progress since independence

4. At partition, most of the banks in Pakistan were the branches of foreign banks, Indian and others, and were staffed mainly by Indians. Immediately after partition the country faced a serious banking situation due to the wholesale migration of the banking staff to India. The immediate tasks of the Government were to establish a central bank, and to rehabilitate commercial banking, which had been seriously disrupted. These tasks were successfully accomplished within the first three years. The progress of commercial banking since then has been rapid, as shown by Table 1.

### TABLE 1

*Banking offices in Pakistan, Year's end, 1948—55*

| | 1948 | 1949 | 1950 | 1951 | 1952 | 1953 | 1954 | 1955* |
|---|---|---|---|---|---|---|---|---|
| Pakistani banks ... ... ... | 40 | 60 | 88 | 106 | 124 | 146 | 154 | 163 |
| Indian banks ... ... ... | 144 | 105 | 89 | 72 | 53 | 52 | 55 | 53 |
| Other banks ... ... ... | 23 | 25 | 25 | 28 | 28 | 32 | 34 | 35 |

NOTE.—*Figures for end of June, 1955.

(*Source* : State Bank of Pakistan).

5. Pakistani banks now hold more than 50 per cent of total deposits, and play a major role in the movement of cash crops and the provision of short-term credit for new industries. Their growth has been greatly stimulated by the action of the State Bank in confining the opening of new branch offices by foreign banks to ports and other main commerical cities. The State Bank of Pakistan, which is the central bank of the country, has not contented itself merely with the performance of the traditional duties of central banking but has played a more positive role in meeting the requirement of an underdeveloped economy. It has established its central banking functions on a firm basis, and has prepared and implemented a programme for the rehabilitation and development of commercial banking.

6. Several important long-term credit institutions have been established since independence. The Pakistan Industrial Finance Corporation has played a useful role in providing credit to industrial undertakings. The activities of the House Building Finance Corporation are of a limited nature and could not be regarded as constituting a national housing programme. The Agricultural Development Finance Corporation is dealt with under rural credit. The Refugees Rehabilitation Finance Corporation has been helpful in the rehabilitation of the refugees but its operations are not of continuing national significance. Table 2 gives an idea of the volume of business transacted by these institutions.

### TABLE 2

*Activities of government credit institutions upto June, 1955*

| Institutions | Number of cases | Loans sanctioned | Loans drawn | Loans re-paid | Loans out-standing |
|---|---|---|---|---|---|
| | | (Million rupees) | | | |
| 1. Pakistan Industrial Finance Corporation. | 526 | 70·8 | 47·5 | 14·9 | 32·6 |
| 2. House Building Finance Corporation. | 1,922 | 20·5 | 12·0 | 0·4 | 11·6 |
| 3. Refugees Rehabilitation Finance Corporation. | 7,038 | 15·0 | 15·0 | 8·0 | 7·0 |
| 4. Agricultural Development Finance Corporation. | 466 | 5·2 | 2·4 | 0·1 | 2·3 |

(*Source* : Information supplied by the respective Corporations).

7. One of the main problems of Pakistani banks was the lack of trained and experienced staff. The State Bank in particular, and other banks generally, have been promoting schemes of training bank staff, which have satisfied the immediate needs. The young men thus trained are acquiring experience which will fit them in course of time to provide the enterprise and leadership needed for developing credit institutions. But still more attention needs to be paid to the training of bank staff.

**Central banking**

8. We have already noted that the State Bank has played an active role in the rehabilitation and development of commercial banking in the country ; the main problem of banking now is to keep abreast of developments in production and marketing. But the State Bank has still many important national tasks to perform. It has to play a major part in organising industrial and rural credit. It has to regulate credit policies to ensure that credit is available for the fulfilment of industrial and agricultural programmes embodied in the Plan, and is not directed into the sectors where development is not recommended. Central banking policies and procedures have to be improved and changed where necessary to serve the needs of the developing economy. The money market has to be encouraged and developed further to provide more adequate financing for domestic trade. Credit expansion has to be properly geared to the growth of capacity to save, neither falling short—which would result in inadequate economic development—nor going too fast—which would generate inflationary pressures. We have no doubt that the State Bank will do all that is expected of it, and the suggestions we make here are intended to help it play its role more effectively.

9. Constitutionally, the State Bank is the chief instrument of the Government for implementing monetary policies. We suggest that the logical implications of this position should be fully recognised in practice. It follows that the State Bank should be the chief adviser of the Government on credit policy, and should be the agency for the direction and control of all credit institutions where the solution of technical credit problems is important, as distinct from institutions whose operations involve mainly administrative problems within relatively well-defined policies. Government relations with the former institutions should be through the State Bank. This will establish the authority of the State Bank firmly, and enable it to perform its duties towards the Government and the country more effectively. The Agricultural Development Finance Corporation, the National Bank of Pakistan and the Agricultural Bank now contemplated are institutions where the need for establishing and for reorienting such relationships seems to exist. It is in the State Bank that technical knowledge about rural credit and commercial banking must be deemed to reside. The State Bank should exercise full authority over such institutions, and be responsible for supervising the preparation and implementation of their programmes of expansion and development.

10. In conformity with the same principle, we consider that the State Bank should be given the responsibility of watching and studying the market for long-term capital, and of formulating policies for its development. This duty can be performed effectively by the State Bank in collaboration with the Pakistan Industrial Finance Corporation and the proposed Industrial Bank. This important sector of the money market does not appear at present to be the responsibility of any general co-ordinating authority.

11. There are finance and credit corporations whose technical credit problems are less important, and which can be managed within well-defined working procedures ; these corporations include the House Building Finance Corporation, the Refugees Rehabilitation Finance Corporation, and the Pakistan Industrial Finance Corporation. In such cases it is unnecessary that the Government should use the State Bank as a controlling

agency. But as the main institution concerned with credit conditions and policies, the Bank should be closely associated with them in their Boards of Management as well as in their technical duties.

12. For performing its duties towards other financial institutions, the State Bank will need men with technical knowledge and broad financial and administrative experience. It will not find it convenient to detach its senior men from their present duties to serve with these credit institutions. Nevertheless, it is a duty which has to be performed, and the State Bank must develop its staff resources accordingly.

## The Monetary Board

13. Monetary policies and the development of credit and credit institutions must play an important role in implementing the economic and financial policies of the Government. At present the advice of the State Bank is available to the Government in reviewing and determining its monetary policies. However, we suggest that a Monetary Board be established at a high level to review and assess monetary and fiscal policies and developments, to advise the State Bank, and to make recommendations to the Government. The Board of Directors of the State Bank is composed of men holding eminent positions in business, industry or public life, and the country has reason to be satisfied with the manner in which its monetary affairs have been managed. It seems desirable, however, that a Monetary Board composed of leading officials in the monetary field should be established. Such a body would be of very great help to the State Bank as well as to the Government. It should have the Minister of Finance as its Chairman and the Governor of State Bank as the Vice-Chairman. Its members might include the Managing Directors of the National Bank of Pakistan, the Pakistan Industrial Finance Corporation, and the proposed Industrial Bank, in addition to representatives of the Planning Organisation, the Ministry of Finance and the business community. Its functions should be as follows :

(*a*) Review of monetary and fiscal policies of the country with a view to making recommendations to the Government ;

(*b*) Consideration of important policies in the monetary area which affect more than one branch of banking ; and

(*c*) Consideration of programmes for the development of credit and credit institutions as part of the general development plan of the country.

14. The recommendations of the proposed Monetary Board should be considered by the State Bank and submitted by it formally, with its own views, to the Government for orders.

15. We should emphasise that the Monetary Board would not encroach upon the authority of any existing body. It would help the State Bank and the Government in formulating co-ordinated monetary, fiscal and economic policies in the full knowledge of the views held by leading authorities in the various fields.

## Programme of banking expansion

16. Before the commencement of each year, the Government and the State Bank should frame a programme for the expansion of banking, after obtaining the views of the Monetary Board. We include all finance and credit corporations in the term ' banking '. The progress made should be reviewed periodically, and a full report made to the Government at the end of each year. We should emphasise that expansion of banking cannot be left wholly to the operation of market incentives, and must be treated as a part of the general development plan, many sectors of which have to be promoted in the general interest of the economy regardless of profit prospects. Credit is one of the basic services essential to

development. The power of the State Bank under its agreement with the National Bank of Pakistan, to require new offices to be opened, should be used wherever necessary. The opening of such offices will entitle the National Bank of Pakistan to a subsidy under the agreement. The benefits to the economy can be much larger than the cost of the subsidy. New offices will be opened in places where prospects of development are known to exist ; the programme of expansion of each institution should be a balanced one, so that offices are opened not only at places which are attractive but also at those which are less attractive.

### Clearance and transfer facilities

17. An important function of a central bank is to provide facilities for the clearance and transfer of inter-banking items, including transfers of funds from one part of the country to another. The present system for this purpose was established in 1937 and has become out-dated and inadequate. We recommend that a committee including the representatives of the Government, the State Bank, and leading associations of commerce and industry should be established to consider this matter. It should explore the possibility of allowing transfer of funds at a very small, almost a nominal, cost to all places in the country which have a banking office or a treasury or a sub-treasury. The provision of transfer and clearance facilities should be looked at from the point of view of the needs of the economic system and not from a narrow profit point of view. Low cost transfer facilities will be of considerable help in the money market and will facilitate internal trade. The possibility of making use of post offices also deserves consideration. The transfer facilities at present provided by the post offices are cumbrous and expensive.

### The further development of commercial banking

18. While commercial banking has been built up under the fostering care of the State Bank after its serious breakdown at the time of partition, it is nevertheless inadequate for the requirements of the country. Nor has it generated within itself the needed potential for further expansion and improvement to keep pace with developments in other sectors of the economy. A bank with a capital of not less than Rs. 5 lakh, if approved by the State Bank, is known as a Scheduled Bank. The number of scheduled bank offices in June, 1955 was 251 as against 635 before independence. The number of non-scheduled bank offices has decreased from 704 before partition to 99 at present, the majority of which are inactive. There are several districts and important commercial towns which have no commercial bank offices. There are many treasuries and sub-treasuries without any banking facilities.

19. Commercial banks extend their facilities largely for export and import trade or for large-scale industry. Internal trade and small business and industry are left largely alone. There is need for institutions for small-scale banking serving particular areas, which could help men with relatively small businesses, on the basis of personal knowledge. Working capital is needed by small industrial concerns such as rice, flour and oil mills, leather manufacture, etc., and by small traders for financing their inventory holdings. Co-operatives should provide much of the necessary credit, but there would always be substantial room for commercial banks with local knowledge, enterprise, and experience.

20. The requirements of credit are affected by the busy and slack seasons which are broadly co-extensive with the winter and summer. To permit credit to expand and contract according to fluctuating requirements, the country has always felt the need for a bill market. However, circumstances have not been favourable for the development of such a market. Three years ago the State Bank introduced a tentative bill system based on cash credit. It has made some progress, but has not gained much popularity and the

need for an easily marketable credit instrument has not been met. This need will be greater in future with the expansion of production and consumption, and the resulting expansion of trade.

21. We make the following recommendations to meet the requirements of commercial banking :

(*a*) The scheduled banks should be encouraged to open new branches in accordance with a planned programme as suggested earlier ;

(*b*) The State Bank, in collaboration with the leading Pakistani banks, should sponsor the organisation of local banks by supplying technical guidance and a few experienced officers. A part of the capital should be provided by the State Bank or the National Bank of Pakistan. The primary function of the small local banks should be the financing of domestic trade and meeting the working capital requirements of small industries and businesses in which local knowledge and initiative are needed. A special corps of trained bank officers will have to be formed for this purpose ;

(*c*) We are assured that there are firms and individuals with adequate financial resources willing to establish discount houses. This would be a welcome development with potential for the expansion of the money market and its credit facilities. We recommend that a committee consisting of businessmen and representatives of Pakistani banks should be appointed under the leadership of the State Bank to consider this matter and formulate detailed proposals. Discount houses should discount bills of trade but should not be allowed to accept deposits. Commercial banks should contribute to their capital and provide re-discounting facilities at concession rates. The State Bank will provide re-discounting facilities to the commercial banks.

22. At present our commercial banks do not have any research units for the collection and processing of economic data for their use or for the use of their clients. Some information is collected, but the work is not organised on a systematic basis. It is necessary that the banks should be well informed in order that bank credit may be utilised intelligently and productively. The function of a research unit would be to collect, analyse and provide, in a convenient form, the data which are relevant to the banks' needs. It would be of great educative value for the management as well as the staff. It would enable the bank to transform itself from a mechanical provider of credit and collector of deposits to an active participant in the progress and development of the country. It would establish closer bonds between the bank and its clients. It would give the bank an understanding of economic needs and conditions. It would enable the banks to do less collateral and more general credit lending and to rise from the level of pawn shops advancing credit against stocks of commodities only. Banks would be better informed about lines of production deserving of support. There is little doubt that this type of development will give the banking system much-needed elasticity and increase its ability to serve the community.

### Industrial credit

23. Industrial credit is provided at present by the commercial banks and the Pakistan Industrial Finance Corporation. For short-term credit the commercial banks are the only source though some of them provide credit for the purchase of machinery and other assets on a restricted scale to favoured customers. Since partition the lendings of commercial banks to industry have increased, particularly those of Pakistani banks, which provide approximately 60 to 65 per cent of the total commercial bank industrial credit. There is a general feeling among the industrialists that the commercial banks are very selective

and extremely conservative in their lending policies, and are not, therefore, able to meet the requirements of industry in full. As a result there has been a demand for creating a new organisation to fill the vacuum.

24. We have no doubt that in accordance with established traditions commercial banks should remain the main source of short-term credit. Their inability to meet industrial credit requirements fully may be due to various reasons, such as inadequacy of funds, lack of sufficient interest in local industries, lack of drive and enterprise leading to caution and conservatism, or inadequacy of organisation. There must be cases in which credit has to be refused because the client has little more than his good intentions to support his request. The responsibility for financing the short-term requirements of newly established industries must be largely that of Pakistani banks, which have lately extended their activities considerably, though perhaps not to the extent considered necessary. We are certain that it cannot be due to lack of concern for local industries. The lack or inadequacy of funds can be removed by suitable arrangement between the State Bank and the commercial banks. We feel that the organisation of the banks is not yet adequate to the demands that are arising in the country as a result of increased economic activity, but we would stress that the requirements of industry in this respect will not be met by any specialised organisation. Even if the need for such an institution is accepted it would take many years before it is able to spread its branches all over the country. It would encounter difficulties in obtaining the co-operation of commercial banks, whom it would try to deprive of a part of their remunerative business. We must, therefore, seek a solution by developing greater awareness among the commercial banks of their responsibilities towards industry. Equally, industry must appreciate that the commercial banks are trustees of the funds which they deploy, and their first responsibility is to the depositors. The State Bank can help in bringing about a greater understanding between the two parties by arranging periodical meetings in which general problems can be discussed as well as concrete cases in which difficulties have been experienced. These concrete cases should first be examined by the State Bank in order to form its own judgment regarding their genuineness and the discussions at the meetings can be held without disclosing names. The commercial banks and the industrial managers between themselves can do a great deal under the leadership of the State Bank to improve the situation by promoting a better appreciation of each other's difficulties and problems.

25. The limited role which has been played by the commercial banks in providing credit to the industrial sector is revealed in the table presented below. This table compares the fixed capital and working capital invested in large and small-scale industries with the advances made by the Pakistan Industrial Finance Corporation and the commercial banks to the industrial sector.

### TABLE 3

*Estimates of capital invested in Pakistan industries up to June* 30, 1955

(In millions of rupees)

| | Fixed capital invested | Total advances of P.I.F.C. | (2) as per cent. of (1) | Working capital invested | Advances of commercial banks | (5) as per cent. of (4) |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Small-scale and cottage ... | 160 | 48 | 3.1 | 131 | 111 | 10·6 |
| Large-scale ... | 1,373 | | | 916 | | |
| Total ... | 1,533 | 48 | 3·1 | 1,047 | 111 | 10·6 |

26. It will be observed that the contribution of the Pakistan Industrial Finance Corporation in meeting the fixed capital requirements of industry has been small, and that commercial bank advances constituted only about 10 per cent of the total working capital invested in industry as on June 30, 1955.

27. Both the fixed capital and working capital requirements of industry are expected to increase considerably during the Plan period. This calls for an additional fixed capital investment in industry of some 1,400 million rupees during 1955—60. Similarly, it is expected that the working capital invested will increase from about 1,000 million rupees in 1955 to about 2,000 million rupees by 1960. Although the new investment in fixed capital will be met from several different sources—among them government funds and undistributed profits of private enterprise—it is clear that both the Pakistan Industrial Finance Corporation and the proposed Industrial Bank discussed in subsequent sections will be called upon to play an extremely important role in meeting credit requirements. However, the additional working capital requirements estimated at about 1,000 million rupees will have to be met in part by the commercial banks. If only 10 per cent of the additional working capital requirements were met from commercial bank advances, this would imply an increase in such advances of 100 million rupees. With the broadening of commercial bank activities in this field which we recommend, the increase in advances should very substantially exceed this figure.

**Pakistan Industrial Finance Corporation**

28. The most important development in the field of industrial credit since independence has been the establishment of the Pakistan Industrial Finance Corporation in 1949 to provide long and medium-term credit to industrial concerns. The total financial assistance extended by this Corporation in the form of loans, underwriting agreements and guarantees upto June 30, 1955, amounted to Rs. 47·5 million. The total financial credits sanctioned but not necessarily utilised from 1951 to June 30, 1955, amount to Rs. 70·8 million. The assistance granted being of a marginal character only, it must be regarded to have been substantial in effect though not in volume. The bulk of the loans were granted to the textile industry—cotton, jute and wool. More than 20 per cent of the amounts paid have already been recovered. The borrowers generally meet their obligations in time and in several cases the loans have been repaid before the maturity dates.

29. It has been suggested that the Corporation should extend its activities to short-term lending. We have already expressed the opinion that for short-term needs of industry commercial banks must remain the main source. We greatly doubt that the Pakistan Industrial Finance Corporation will be able to secure substantial deposits or will be able to extend its organisation over the entire country which would be needed for short-term lending. The industrialists are accustomed to deal with the commercial banks and the likelihood is that only marginal cases involving more than normal risks will be referred to the Corporation. There is also the danger that the energies of the Coporation will be diverted towards ordinary banking, which will defeat the very purpose of its existence.

**Industrial Credit Bank**

30. With respect to the provision of long and medium-term credit, the Pakistan Industrial Finance Corporation has not played as important a role as it had been expected to play when it was established. This is largely because the Corporation under its charter can lend only on limited types of security, and was given no responsibility for promoting industrial growth.

31. For the purpose of assisting the planned development of industries there is a clear need for a new type of organisation, which the Government and the State Bank are now helping to establish. This will be a private industrial credit bank, with the purpose of encouraging and stimulating the industrial development of Pakistan by providing financial assistance primarily to small and medium-sized industries owned by private capital. This financial assistance would normally be medium or long-term, and could take the form of loans or equity investment and of the underwriting and distribution of securities. The industrial credit bank would stimulate and assist the creation of new industries as well as the expansion of existing enterprises. Furthermore, it is intended that the new bank will furnish managerial, technical, and administrative advice, and assist in obtaining managerial, technical, and administrative services to industry.

32. The proposed new industrial credit bank is well conceived, and should be established as soon as possible, as it will take some time to build up the staff and operating experience to make the bank fully effective. In addition to its direct services to industrial development, the new bank can also be of considerable help to the State Bank in studying and promoting the development of the capital market in the country.

33. The proposed bank is expected to start with financial resources of 90 million rupees, 20 million of which would come from private investors in Pakistan and abroad, 30 million from the Government as an interest-free loan ; 20 million from the State Bank as a loan at a low rate of interest ; and 20 million as a loan in foreign currencies from the International Bank for Reconstruction and Development. The bank would be controlled by a board of directors, all of whom have been proposed to be private citizens, and would be managed by a qualified general manager, who is expected to be obtained from abroad for an initial period with the help of the International Bank for Reconstruction and Development. We have only two suggestions to make with respect to these proposals. We are strongly of the view that the Government and the State Bank, who will make substantial contributions to the resources of the new bank, should be represented on its management. We consider this essential for preventing abuses, the possibilities of which cannot be completely ruled out. We also think that the appointment of the managing director should be subject to the approval of the Government.

### Training

34. Training is of crucial importance in all fields, but in banking its utility and effectiveness have been demonstrated in actual performance. Pakistani banking started practically without any trained personnel in responsible positions. There were a few officers who had worked in the Reserve Bank of India, the Imperial Bank of India, or certain other banks, but their number was small. The State Bank, therefore, embarked on a programme of training and recruited young men greatly in excess of actual requirements at the time. This policy of recruitment and training enabled the State Bank to expand and improve its own services, and also to provide a strong nucleus staff to the National Bank of Pakistan. It is indeed true to say that the officers and probationers who were recruited by the State Bank without any vacancies in view and, therefore, in disregard of normal financial doctrines, have provided the foundation on which the edifice of the National Bank of Pakistan has been raised. A training programme is being executed by the State Bank, but we feel that there is need for placing it on a broader basis. It seems to us that all Pakistani banks require increasing numbers of trained men for expanding their organisation. This requirement is presumably met by their normal recruitment and training programmes. However, with the Industrial Bank and the Agricultural Bank in prospect, the country's banking system will need even larger number of officers with new types of training and experience. We also consider that the State Bank should build a small cadre of officers for assisting in the development of regional banks, which, in our view, are necessary for spreading banking services in the interior of the country for small business and industry. We, therefore,

suggest that the State Bank should formulate a programme of training officers who will staff the banking offices and institutions to be opened under the development programme of the Government. The State Bank need not conduct all the training activities itself, but it should accept the responsibility of estimating how many persons of different types should be trained, and of stimulating the provision of the necessary training facilities.

35. We consider that for all probationers, for whatever branch they are selected, the passing of an appropriate examination must be a necessary condition of retention. For agricultural and industrial banking, special supplementary examination should, if necessary, be instituted in addition to the Institute of Bankers Examination.

36. We further suggest that a special training programme should be introduced for talented men who have acted as managers for some years and shown special ability and promise. Those who are marked out for occupying senior positions should be given intensive training of a high order for 12 to 18 months, at the end of which they should appear in an examination. This arrangement will correspond somewhat to Staff College training in the defence services. It is particularly necessary in the field of banking, where the extreme shortage of experienced men makes it necessary to adopt special measures. The training programme should select promising young men, say below the age of 35 years, and give them specialised education and training of a high order. Leaders are needed in banking as in many other fields, and it is reasonable to expect that by the adoption of these measures, the country will be able to find men able to guide and direct expanding institutions in the field of rural and industrial credit which are largely new and unexplored.

## INSURANCE

### General insurance

37. General insurance, as an ancillary service to commerce and industry, is essential to the functioning of modern commercial and industrial organisations. Life insurance is a source of security for families and is a powerful incentive to thrift. The primary function of insurance is to provide coverage for risks and, therefore, the safety of funds and investments must be the first concern of insurance administration. By mobilising the savings of the nation, life insurance makes a most important contribution to development, though this emerges only as a by-product. We deal in particular with this secondary function of insurance, in view of its special value to development. It mobilises national savings, collects them from individuals throughout the country, and canalises them in broad streams into productive investments. Large volumes of savings are needed for a dynamic economy, but the traditional sources in large accumulations of income and wealth in the hands of individuals must shrink as a result of measures for more equitable distribution of income and property. It will be necessary to rely increasingly on small savings by men and women all over the country, which must be encouraged and promoted by all possible means. In this country, life insurance is in an early stage of development with a large unexploited but promising field. The total amount insured represents Rs. 5 per head against Rs. 26 in India, Rs. 2,304 in the United Kingdom and Rs. 10,800 in the U.S.A., and is about 2 per cent. of the national income against 10 per cent. in India. Even so, it is already making a large contribution towards the development of the securities market. The total investments of insurance companies (excluding the Postal Life Service) in government and other securities amount to about Rs. 15 crore to which the share of Pakistan offices would be about 50 per cent.

38. After partition, insurance, like banking and other commercial services, suffered a serious set-back. The life policy holders were amongst the worst sufferers and life insurance appeared to many as a trap for their hard earned saving. The position was aggravated during the financial deadlock with India from September, 1949, to March, 1951,

when transfers of funds between the two countries had ceased. Since then it has made an encouraging recovery, and under active and imaginative State policies conditions can be favourable for its rapid advance.

39. Tables 4 and 5 show the progress that has been made since 1948 in general insurance and life insurance respectively.

### TABLE 4

*Particulars relating to general business transacted in Pakistan by Pakistani and foreign insurers,* 1948—53

'P' = Pakistani.
'F' = Foreign.

Fire

| Year | Number of companies | | Net premium income | | Percentage of total net premium income | |
|---|---|---|---|---|---|---|
| | P | F | P | F | P | F |
| | | | (Thousand rupees) | | | |
| 1948 | 3 | 61 | 695 | 1,800 | 28·00 | 72·00 |
| 1949 | 4 | 64 | 486 | 4,578 | 9·60 | 90·40 |
| 1950 | 4 | 67 | 1,099 | 6,109 | 15·64 | 84·36 |
| 1951 | 4 | 69 | 1,213 | 8,455 | 12·54 | 87·46 |
| 1952 | 6 | 71 | 1,644 | 6,997 | 19·00 | 81·00 |
| 1953 | 6 | 69 | 1,762 | 5,830 | 23·20 | 76·80 |

Marine

| Year | Number of companies | | Net premium income | | Percentage of total net premium income | |
|---|---|---|---|---|---|---|
| | P | F | P | F | P | F |
| | | | (Thousand rupees) | | | |
| 1948 | 3 | 47 | 854 | 1,287 | 40·00 | 60·00 |
| 1949 | 4 | 47 | 1,110 | 3,135 | 26·14 | 73·86 |
| 1950 | 5 | 49 | 595 | 5,406 | 9·91 | 90·09 |
| 1951 | 5 | 55 | 497 | 7,351 | 6·33 | 93·67 |
| 1952 | 7 | 57 | 706 | 3,565 | 16·53 | 83·47 |
| 1953 | 6 | 56 | 767 | 3,239 | 19·14 | 80·86 |

### TABLE 4—*contd.*

| Year | Motor and miscellaneous | | | | | |
|---|---|---|---|---|---|---|
| | Number of companies | | Net premium income | | Percentage of total net premium income | |
| | P | F | P | F | P | F |
| | | | (Thousand Rupees) | | | |
| 1948 ... ... ... | 4 | 50 | 753 | 1,176 | 39·00 | 61·00 |
| 1949 ... ... ... | 6 | 51 | 1,213 | 2,174 | 35·80 | 64·20 |
| 1950 ... ... ... | 6 | 53 | 1,413 | 2,779 | 33·70 | 66·30 |
| 1951 ... ... ... | 7 | 55 | 1,601 | 3,462 | 31·62 | 68·38 |
| 1952 ... ... ... | 10 | 56 | 2,080 | 3,660 | 36·23 | 63·77 |
| 1953 ... ... ... | 10 | 51 | 1,835 | 3,883 | 33·00 | 67·00 |

### TABLE 5

*Net amount of new life business effected in Pakistan*, 1948—53

'P' = Pakistan.
'F' = Foreign.

| Year | Number of policies | | Percentage of total No. of policies | |
|---|---|---|---|---|
| | P | F | P | F |
| 1948 ... ... ... ... ... ... | 11,949 | 3,118 | 79·30 | 20·70 |
| 1949 ... ... ... ... ... ... | 23,457 | 5,787 | 80·22 | 19·78 |
| 1950 ... ... ... ... ... ... | 12,107 | 3,598 | 77·10 | 22·90 |
| 1951 ... ... ... ... ... ... | 12,243 | 2,944 | 80·62 | 19·38 |
| 1952 ... ... ... ... ... ... | 10,681 | 6,547 | 62·00 | 38·00 |
| 1953 ... ... ... ... ... ... | 10,764 | 9,965 | 51·90 | 48·10 |

| Year | Sum assured | | Percentage of total sum assured | | Average sum assured | |
|---|---|---|---|---|---|---|
| | P | F | P | F | P | F |
| | (Thousand rupees) | | | | (Thousand rupees) | |
| 1948 ... ... ... | 34,691 | 10,933 | 76·04 | 23·96 | 2,900 | 3,500 |
| 1949 ... ... ... | 32,027 | 23,914 | 57·26 | 42·74 | 2,740 | 4,132 |
| 1950 ... ... ... | 41,178 | 24,952 | 62·27 | 37·73 | 3,401 | 6,935 |
| 1951 ... ... ... | 47,859 | 25,835 | 64·95 | 35·05 | 3,909 | 8,775 |
| 1952 ... ... ... | 46,771 | 41,963 | 52·71 | 47·29 | 4,379 | 6,410 |
| 1953 ... ... ... | 52,473 | 62,392 | 45·68 | 54·32 | 4,884 | 6,261 |

TABLE 5—*contd.*

| Year | Yearly renewal premium | | Percentage of total yearly renewal premium | |
|---|---|---|---|---|
| | P | F | P | F |
| | (Thousand rupees) | | | |
| 1948 ... ... ... ... ... ... | 17·19 | 6·38 | 72·93 | 27·07 |
| 1949 ... ... ... ... ... ... | 31·64 | 12·75 | 71·27 | 28·73 |
| 1950 ... ... ... ... ... ... | 21·84 | 14·44 | 62·20 | 37·80 |
| 1951 ... ... ... ... ... ... | 28·28 | 14·98 | 65·37 | 34·63 |
| 1952 ... ... ... ... ... ... | 26·18 | 20·85 | 55·67 | 44·33 |
| 1953 ... ... ... ... ... ... | 26·89 | 34·37 | 43·90 | 56·10 |

40. It will be observed that foreign companies have been increasing their share of business and the relative position of Pakistani companies has deteriorated compared with 1948. In the case of fire and marine the figures declined precipitately after 1948, but have shown some improvement in recent years. In life insurance, the deterioration is continuous except for the two-year period 1950 and 1951. The above tables are based on net income figures. Gross income figures are not available, but we understand that they would show a substantial improvement in the relative position of Pakistani companies in fire business, though only a slight improvement in marine business. Even so, the share of Pakistani companies in the total business is relatively small. The Economic Appraisal and Development Enquiry Committee has expressed its concern about the small share of Pakistani companies in the Pakistan insurance market, and the position has not shown much improvement since then. Foreign insurers enjoy marked advantages, which are inherent in the situation and cannot be equalled, without support from the Government, by any efforts on the part of Pakistani companies. They had been in business long-before Pakistani companies came on the scene, possess superior skill and knowledge, and are backed by large accumulated resources and world-wide organisations. The position of Pakistani insurance is that of an infant industry which needs care and support.

41. The main reason why it has not been possible to extend such support fully lies in the desire to avoid discrimination. But avoidance of discrimination may be over-ruled by other objectives of national policy, as when tariff protection or other assistance is afforded to specific industries. In the course of development a country has to take measures and adopt programmes without which the goals of national policies would be impossible to achieve, but which on a superficial view appear to involve an undesirable measure of discrimination. Many countries have taken special measures to develop insurance, and we see no reasons why support should not be given to local insurance. It is illogical that a country faced with an acute shortage of foreign exchange should spend it freely in payment for insurance services, when by developing Pakistani insurance a major part of these services can be provided as economically without this expenditure. We consider that this position can be set right by formulating and pursuing clear policies and programmes. We recognise the valuable services often provided by the foreign companies. But in this, as in other fields, we recommend steps to increase the part of domestic companies in an expanding market for the benefit of the country's balance of payments.

42. The Economic Appraisal and Development Enquiry Committee made a series of recommendations for the development of Pakistani insurance. In one of its recommendations it suggested the formation of a government-sponsored company with the objects of providing re-insurance facilities and expanding its operations in order to reduce the drain of foreign exchange resulting from the operation of foreign companies. Action to form such a company was taken by Government before this recommendation was made ; the Pakistan Insurance Corporation was formed by special legislation in 1952 and has largely solved the problem of re-insurance facilities for Pakistani companies. Much remains to be done, however, in other fields—encouragement of existing and promotion of new companies, expansion of operations to save foreign exchange, training men to occupy responsible positions, and checking discriminatory and illegal rebates.

43. We suggest that a committee representing Pakistani companies and the Pakistan Insurance Corporation should be appointed to consider and recommend policies and measures which, on a co-operative basis between them, will contribute towards saving of foreign exchange, building a strong local re-insurance market, and pooling their resources for promoting a sizeable market in the country for re-insurance from abroad. The Controller of Insurance, acting under policies of minimum capital requirements laid down by the Government, should disallow the formation of companies without adequate capital and managerial staff. The Pakistan Insurance Corporation should itself promote new companies and, wherever possible, assist existing companies with capital and trained staff to bring them up to the minimum level of service efficiency.

44. We believe that in addition to action on the recommendations of the Economic Appraisal and Development Enquiry Committee, the Government should take other measures for stimulating the development of Pakistani insurance. A large proportion of the foreign exchange payments is attributable to the operations of foreign companies. Pakistani insurers have to make remittances to cover re-insurance premia after deduction of the foreign re-insurers' share of the losses incurred. But the profits of Pakistani companies, which are estimated to amount to 15 to 20 per cent of the gross premium receipts are retained within the country, whereas companies remit all their surpluses abroad. This constitutes the major source of the drain on foreign exchange. We suggest that all industrialists who receive assistance from the Government in one form or another should be expected to insure with Pakistani companies.

45. Registration of new foreign companies should be allowed only if the applicant belongs to a country which has no representation here already and if reciprocal advantages are expected. The insurance market is not so large as to justify unlimited registration of foreign companies.

46. Pakistani insurance companies have capital as well as reserves which in the total are in excess of the amounts required for compulsory deposits. Foreign companies are under no obligation to bring capital funds in excess of the prescribed minimum deposit requirements. In order to place all companies on an equal footing, a minimum capital requirement related to the volume of business done by a company should be prescribed for all companies, whether Pakistani or foreign.

47. One of the most serious evils from which the local insurance market suffers, and which impedes the development of young companies, is the practice of the agents and policyholders to obtain covers without payment and thus help themselves to large credits—a practice which companies tolerate in order to retain their position in a highly competitive market. In life insurance no company assumes a risk until payment has been received. The possibility of applying this principle with suitable modifications to other types of risk should be investigated. Fire presents no serious difficulties, but has its own special problems. This reform will pave the way for dealing with the evil of illegal rebating. The

present rates contain ample margins for bad debts and illegal rebates, and one of the possible steps to check the latter would be to make a general reduction in the tariff on a graduated basis related to the size of the risks, which would force the companies to reduce the magnitude of the evil or to suffer losses on their operations.

### Life insurance

48. Life insurance should be recognised by the Government as a very important and effective agency for the mobilisation of savings and their employment in productive investment. Following such recognition the duty of studying the problems of life insurance, its policies, programmes and requirements should be assigned to an agency best fitted for this purpose. We have recommended elsewhere that the State Bank should undertake the duty of watching, guiding and stimulating the development of long-term capital market of which life insurance will constitute an important and growing element.

49. Postal life insurance has recently extended its operations with great benefit to its potential beneficiaries as well as to the national savings programme. Postal life insurance should be so staffed, managed, and led as to impart the maximum drive and vigour into its operations.

50. Extension of life insurance to lower income levels needs an active programme. We accordingly recommend that the Government should establish a Public Life Insurance Corporation to be run on business lines as a life insurance office. It should concentrate on the development of insurance for lower income groups such as workers in factories, offices, public, semi-public and private institutions, artisans, and cottage workers. The people will have greater confidence in a government sponsored corporation, and under proper leadership and with a good organisation it will go a long way in promoting thrift. We suggest that postal life insurance should be amalgamated in this corporation without reducing the privileges which are at present enjoyed by those who are holding its policies. The new corporation might be called the Government Postal Life Insurance Corporation in order to express the intention that post offices will continue to be employed as an agency. Life insurance not only sells security but also provides personal service. Its development requires capacity for seizing all opportunities, for taking the initiative and for developing fields. A government departmental organisation is not well suited for providing such a service. The corporation should have an expert from a foreign country to advise it in its first 2 or 3 years ; his assistance will be valuable in establishing the organisation on sound and progressive lines. We have made a provision of 2 million rupees for this Corporation. To dispel the apprehension of private companies, the Corporation may be required to concentrate on lower income groups by providing that the insured amount will not exceed a specified figure for any individual. The Corporation can also under take re-insurance of life so that, along with the Pakistan Insurance Corporation and the local insurers, it can eventually handle the bulk of life reinsurance requirements of the country. It will also be able to undertake, in co-operation with other life insurance offices in the country, an active programme of publicity to carry the message of life insurance to all parts of the country and all classes of the population.

51. We assume that the policy of the Government will be to encourage the formation of domestic insurance companies to save and earn foreign exchange and to perform most of the insurance services needed by the country. General insurance companies from this point of view are no less important than industrial concerns. We recommend that new insurance companies should be exempt from taxation for the first five years, subject to the dividend being restricted to 5 per cent of the capital. Industrial concerns are frequently

able to earn dividends very early in their career, but insurance companies have to struggle for several years before reaching a dividend earning basis. Even when they do so, they are seldom able to distribute dividends except at very modest levels.

52. The case of a tax concession is much stronger in the case of life insurance companies. At present the tax is a levy on savings and acts as a discouragement to thrift. Under the formula now applicable, the amount subject to taxation is represented by (*a*) the difference between the expenses and the total yields on investments or (*b*) 80 per cent of the annual surplus disclosed as a result of valuation which at present is undertaken compulsorily at five-yearly intervals, whichever is greater. This basis of taxation is clearly a burden on savings and is unjustified. In the U.S.A. the federal taxation, usually of the order of 50 per cent. of income, is in the case of life insurance companies 6·5 per cent of the valuation surplus, in addition to a tax by the States ranging from 1 to 3 per cent of the premium receipts. Other countries also allow tax concessions of a similar order. We recommend that all incomes which are credited to the life funds should be exempted from taxation. The tax should be imposed only on the amount which is distributed to the shareholders after valuation. Life offices should have no funds or reserves except the life funds which truly represent the savings of policy-holders.

53. We do not favour nationalisation of general or life insurance. In life insurance there is an extensive field for development, and both public and private enterprise are needed to exploit it fully. There is room for private companies, local and foreign, and for a public corporation. There is also room in general insurance for local as well as foreign companies. We feel, however, that excessive dependence on foreign enterprise in such fields as insurance is a legacy from the pre-partition colonial status and should cease ; the country should be enabled by firm and imaginative policies to arrange its own commercial services. The claim of life insurance is that of an institution of national savings, as the most important potential constituent of the long-term capital market necessary to economic development. The appeal for thrift and austerity makes a deep impression if directly joined to the strong sentiments of family affection and responsibility; life insurance is necessary to thrift and austerity, and the latter to economic development.

# CHAPTER 11

# FOREIGN TRADE AND FOREIGN EXCHANGE RESOURCES

## FOREIGN TRADE

### Introductory

1. Foreign trade is an important sector of Pakistan's economy. Nearly ten per cent of the national product is sold abroad, and is matched by corresponding imports. Foreign trade thus plays a strategic role in the economy and its development, far beyond its proportionate share in the national product of the country. Foreign exchange has been and will continue to be one of the most important limiting factors in the level of operation and the development of the economy, because of the increased needs of importing large quantities of plant and materials at the present stage of the country's industrialisation. The fluctuations in export earnings and import costs, resulting from crop fluctuations, and rapid changes in the terms of trade are, therefore, of particularly great importance to the economy.

### Exports

2. Export earnings from commodity trade have been subject to wide fluctuations as shown in Table 1.

TABLE 1

*Earnings from commodity exports 1948—55*

| Year (July—June) | Earnings from commodity exports |
|---|---|
| | (Million rupees) |
| 1948-49 ... ... ... ... ... ... ... ... ... | 1,758 |
| 1949-50 ... ... ... ... ... ... ... ... ... | 1,194 |
| 1950-51 ... ... ... ... ... ... ... ... ... | 2,553 |
| 1951-52 ... ... ... ... ... ... ... ... ... | 2,009 |
| 1952-53 ... ... ... ... ... ... ... ... ... | 1,510 |
| 1953-54 ... ... ... ... ... ... ... ... ... | 1,286 |
| 1954-55 ... ... ... ... ... ... ... ... ... | 1,223 |

*Source:* Central Statistical Office.

Earnings reached their peak in 1950-51, the Korean boom period, and declined to less than half the peak level in 1954-55. Such wide fluctuations in export earnings are an important source of instability in the economy.

3. The volume of exports and export earnings from various commodities are summarised in Table 2, and the proportionate distribution in Table 3.

## TABLE 2

### *Commodity exports, 1948—55*

(Trade years July—June : Values in million rupees)

| Commodity | Unit of quantity | 1948-49 | | 1949-50 | | 1950-51 | | 1951-52 | | 1952-53 | | 1953-54 | | 1954-55 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Qty. | Value | Qty. | Value | Qty. | Value | Qty. | Value | Qty. | Value | Qty. | Value | Qty. | Value |
| Raw Jute ... ... | Million bales. | 6·05 | 1196 | 3·38 | 526 | 6·67 | 1098 | 4·85 | 996 | 5·27 | 566 | 5·13 | 556 | 5·14 | 598 |
| Raw cotton ... ... | Do. | 0·82 | 365 | 0·97 | 397 | 1·40 | 987 | 1·11 | 777 | 1·53 | 694 | 1·19 | 497 | 0·74 | 296 |
| Raw wool ... ... | Million lbs. | 22·4 | 31 | 26·0 | 35 | 29·3 | 75 | 18·5 | 31 | 29·3 | 58 | 22·2 | 47 | 24·4 | 50 |
| Hides and skins ... | Million pieces. | 9·8 | 37 | 10·2 | 30 | 14·4 | 65 | 8·5 | 33 | 10·2 | 37 | 10·2 | 37 | 8·5 | 28 |
| Black tea ... ... | Million lbs. | 29·9 | 42 | 30·8 | 46 | 23·6 | 31 | 34·5 | 42 | 24·7 | 31 | 23·3 | 32 | 26·0 | 56 |
| Other commodities ... | | ... | 87 | ... | 159 | ... | 298 | ... | 130 | ... | 124 | ... | 116 | ... | 195 |
| Total exports | | ... | 1758 | ... | 1194 | ... | 2553 | ... | 2009 | ... | 1510 | ... | 1286 | ... | 1223 |

*Source* : Central Statistical Office.

## TABLE 3

### *Percentage distribution of exports earnings by commodities 1948—55*

| Commodity | 1948-49 | 1949-50 | 1950-51 | 1951-52 | 1952-53 | 1953-54 | 1954-55 |
|---|---|---|---|---|---|---|---|
| Raw jute ... ... ... | 68 | 44 | 43 | 50 | 37 | 43 | 49 |
| Raw cotton ... ... ... | 21 | 33 | 39 | 39 | 46 | 39 | 24 |
| Raw wool ... ... ... | 2 | 3 | 3 | 1 | 4 | 4 | 3 |
| Hides and skins ... ... | 2 | 3 | 3 | 2 | 3 | 3 | 3 |
| Black tea ... ... ... | 2 | 4 | 1 | 2 | 2 | 2 | 5 |
| Other commodities ... ... | 5 | 13 | 11 | 6 | 8 | 9 | 16 |
| Total ... | 100 | 100 | 100 | 100 | 100 | 100 | 100 |

*Source:* Central Statistical Office.

4. Jute and cotton have on an average accounted for more than four-fifths of the total value of exports. The five principal exports—jute, cotton, wool, hides and skins and black tea—have ordinarily accounted for more than 90 per cent of the total export trade. The fluctuations in export earnings are caused more by changes in prices than by changes in volume, though the volume of cotton exports has dropped recently with increased domestic consumption.

5. Before partition, the economies of Pakistan and Indian areas of this sub-continent were complementary, Pakistan areas supplying raw materials like jute and cotton to India and obtaining manufactured consumer goods in return. This pattern of trade continued for some time after partition, and in 1948-49 India took as much as three-fifths of the total exports of Pakistan. Dependence on a single country for selling such a large proportion of total exports was a source of great weakness. This became apparent in the course of the trade deadlock with India after the Indian rupee was devalued and the Pakistan rupee was not devalued in September, 1949. Pakistan, therefore, followed a deliberate policy of diversifying its exports in respect of their destinations. Changes in the direction of Pakistan's export trade are summarised in Table 4.

6. The direction of Pakistan's export trade has radically changed during the last few years. One feature of the change was the rapid and very large decline in the exports to India.

### TABLE 4

*Percentage distribution of private account exports among countries, 1948—55*

| Countries | 1948-49 | 1949-50 | 1950-51 | 1951-52 | 1952-53 | 1953-54 | 1954-55 |
|---|---|---|---|---|---|---|---|
| Indian Republic | 59·6 | 26·8 | 21·8 | 18·8 | 9·9 | 9·1 | 11·6 |
| Belgium, France, Germany, Italy | 11·0 | 17·1 | 21·3 | 23·4 | 22·4 | 25·8 | 24·8 |
| United Kingdom | 11·6 | 15·5 | 12·6 | 13·9 | 15·4 | 17·9 | 21·4 |
| China | 1·2 | 1·8 | 3·5 | 12·7 | 7·5 | 6·9 | 2·8 |
| Hong Kong | 0·5 | 8·2 | 4·9 | 2·7 | 3·3 | 4·4 | 3·2 |
| Japan | 2·6 | 3·7 | 13·0 | 10·9 | 19·1 | 14·1 | 11·9 |
| United States | 6·4 | 5·7 | 6·2 | 2·6 | 6·9 | 6·0 | 7·6 |
| Other countries | 7·0 | 21·0 | 16·6 | 14·9 | 15·5 | 15·6 | 16·5 |
| Total | 100 | 100 | 100 | 100 | 100 | 100 | 100 |

*Source* : Central Statistical Office.

*Note.*—All exports by land are included from the year 1949-50 ; for 1948-49, the only exports by land included are those of raw jute.

Another was the relative expansion of exports to the United Kingdom, Belgium, France, Germany, and Italy. A third was the large increase in the exports to the Far East—Japan, Hong Kong, and China. The proportion of exports to the United States has remained relatively constant. Thus it may be observed that raw jute exports do not at present go to any country in large proportions. India continues to be the largest buyer but there are several other fairly large buyers like the U. K., Germany, France and Belgium. Raw cotton exports are also spread among several countries, with Japan accounting for about one-third of the total. Raw wool exports are much more concentrated, more than 90 per cent now going to the U. K. and the U. S. A. Exports of hides and skins are fairly well diversified. Those of tea are, however, highly concentrated in the United Kingdom.

**Imports**

7. All imports are subject to government control at present. Imports on private account enter only under licences issued by the controlling authorities. A substantial part of the imports enter on government account and these include capital goods and supplies required for government use, defence equipment and stores, coal for public and private use, sugar, and occasionally food-grains and textiles for private use. It was only during the period of the Open General Licence from July 1951 to August 1952 that the volume of imports was largely determined by market forces. Throughout the rest of the period since partition imports have been restricted either due to shortage of supplies such as occurred in the period of dislocation immediately after partition or due to government restrictions necessitated by the shortage of foreign exchange.

8. The data on import trade are not nearly as complete and reliable as those on export trade. A good detailed division of imports on private account both by land and sea is available only from 1951-52 onwards. The data on imports on government account are incomplete.

9. The value of imports on private account shows large fluctuations, as does the value of exports. This is to be expected, because the level of imports depends largely on the foreign exchange earned by exports. The value of imports at current prices and at constant prices from 1948-49 to 1954-55 is shown in Table 5.

TABLE 5

*Value of imports on private account at current and constant prices, 1948—55*

(Million rupees)

| Year | Value at current prices | Index of import prices | Value at 1948-49 prices |
|---|---|---|---|
| **Sea borne only** | | | |
| 1948-49 | 1,258 | 100 | 1,258 |
| 1949-50 | 958 | 79 | 1,207 |
| **Sea borne and land borne** | | | |
| 1949-50 | 1,125 | 79 | 1,417 |
| 1950-51 | 1,430 | 85 | 1,693 |
| 1951-52 | 1,963 | 95 | 2,075 |
| 1952-53 | 936 | 78 | 1,203 |
| 1953-54 | 734 | 86 | 857 |
| 1954-55 | 922 | 81 | 1,135 |

*Source* : Based on Central Statistical Office data.

(The annual index of import prices is a simple average of the quarterly indices published by the Central Statistical Office.)

10. The index of import prices which is used for calculating the value at constant prices is defective because it does not cover the prices of non-standardised commodities such as machinery, so that the estimate of value at constant prices may have a substantial margin of error. Even so, it throws some light on the magnitude of fluctuations in imports. Imports at constant prices rose by about 45 per cent from 1949-50 to 1951-52. In 1953-54 they fell to a little over 40 per cent of the peak level. Except for the emergency wheat imports due to the failure of wheat crop in 1951-52 and 1952-53, the changes in government imports are much the same as that for imports on private account. Such wide fluctuations in imports cause serious dislocation in the economy.

11. Changes in the composition of imports on private account from 1951-52 to the end of 1954-55 are shown in Table 6.

### TABLE 6

*Value of imports on private account, 1951—55*

(Million rupees)

| | 1951-52 | 1952-53 | 1953-54 | 1954-55 |
|---|---|---|---|---|
| **Sea-borne and land-borne** | | | | |
| Consumers goods ... ... ... ... | 921 | 400 | 178 | 227 |
| (of which cotton cloth) ... ... ... ... | (381) | (95) | (10) | (40) |
| Raw materials and fuels ... ... ... ... | 683 | 308 | 314 | 289 |
| (of which cotton yarn) ... ... ... ... | (258) | (57) | (64) | (28) |
| Investment goods ... ... ... ... | 359 | 228 | 242 | 406 |
| Total ... | 1963 | 936 | 734 | 922 |
| **Percentage Distribution** | | | | |
| Consumer goods ... ... ... ... | 46·9 | 42·8 | 24·2 | 24·6 |
| Raw materials and fuels ... ... ... ... | 34·8 | 32·9 | 42·8 | 31·2 |
| Investment goods ... ... ... ... | 18·3 | 24·3 | 33·0 | 44·2 |
| Total ... | 100 | 100 | 100 | 100 |

*Source* : Based on Central statistical Office data.

12. In 1951-52, the bulk of the imports consisted of consumer goods, of which a substantial part was cotton cloth. Raw materials and fuels constituted about one-third of the total imports. These, however, included substantial quantities of cotton yarn. Imports of investment goods were less than one-fifth of the total. Consumer goods imports have declined both absolutely and relatively during the period under review. The percentage fell from 47 in 1951-52 to 25 in 1954-55. The proportion of raw materials and fuels has remained relatively steady. The proportion of the imports of investment goods has increased very substantially from 18 per cent of the total in 1951-52 to 44 per cent in 1954-55. This is a clear evidence of the success of the Government's policy of providing an increasing share of foreign exchange for economic development.

13. Reduction in the imports of consumer goods resulted in serious shortages of certain supplies even of an essential character and caused hardship. This represents a part of the price paid for diverting national resources into investment. Although the proportion of

raw materials imports to total imports remained undiminished, the imported raw materials fell short of the requirements of the increased installed capacity : a part of the capacity remained idle for lack of raw materials.

14. Changes in the direction of import trade during the period under review are shown in Table 7.

### TABLE 7

*Percentage of imports on private account by country of origin, 1948—55*

| | 1948-49 | 1949-50 | 1950-51 | 1951-52 | 1952-53 | 1953-54 | 1954-55 |
|---|---|---|---|---|---|---|---|
| Indian Republic ... ... | 31·8 | 24·3 | 15·1 | 17·7 | 13·5 | 5·3 | 4·0 |
| United Kingdom ... ... | 28·1 | 25·4 | 26·4 | 20·4 | 28·8 | 31·8 | 32·2 |
| Belgium, France, Germany, and Italy. | 6·4 | 8·6 | 11·7 | 12·6 | 13·5 | 20·8 | 16·4 |
| China ... ... ... | 7·3 | 3·2 | 6·1 | 1·2 | 0·7 | 1·4 | 0·2 |
| Hong Kong ... ... ... | 0·5 | 0·5 | 3·3 | 2·2 | 0·7 | 0·9 | 0·1 |
| Japan ... ... ... | 1·2 | 11·0 | 16·2 | 23·8 | 15·4 | 8·7 | 16·3 |
| United States ... ... | 8·0 | 9·8 | 6·6 | 6·1 | 8·7 | 7·0 | 9·2 |
| Other countries ... ... | 16·3 | 17·2 | 14·6 | 16·0 | 18·5 | 23·9 | 21·3 |
| Total ... | 100 | 100 | 100 | 100 | 100 | 100 | 100 |

*Source* : Central Statistical Office.

*Note*:—Land trade data are included completely from 1949-50 onwards.

15. In 1948-49 India and the United Kingdom accounted for as much as 60 per cent of the total import trade. The position has substantially changed since. Imports from India declined from 32 per cent in 1948-49 to 4 per cent in 1954-55. Imports from Western European countries have substantially increased. The proportion of imports from China has fallen, but has been more than offset by substantial increases from Japan. The proportion of imports from the United Kingdom and the United States were about the same in 1954-55 as in 1948-49.

**Invisibles**

16. Receipts and payments on account of invisibles have had a substantial effect on the balance of payments in the past. In common with many under-developed countries, Pakistan's invisible payments are greatly in excess of receipts. This is due largely to the necessity for making payments for services of foreign shipping, insurance and banking, and for interest and dividends on foreign private capital. Expenses on account of *Haj* and other travel also account for a large share.

17. The position in respect of invisible receipts and payments on private account from 1951-52 to 1954-55, the period for which complete information is available is summarised in Table 8.

TABLE 8

*Invisible receipts and payments 1951—55*

(Million rupees)

| | 1951-52 | 1952-53 | 1953-54 | 1954-55 |
|---|---|---|---|---|
| Invisible receipts ... ... ... ... | 219 | 179 | 119 | 123 |
| Invisible payments ... ... ... ... | 354 | 233 | 227 | 211 |
| Balance ... ... ... ... ... | —135 | —54 | —108 | —88 |

*Source* : State Bank of Pakistan.

18. Because invisible receipts and payments are in large part connected with trade, both rose to their peak level during 1951-52, the peak trade year, and declined with the subsequent shrinkage of trade ; payments, however, continued to be in excess of receipts. The main items of invisible receipts are expenditure by foreign governments, interest on sterling securities, shipping, income tax, and insurance. Receipts from insurance have tended to rise, partly because of the requirement in force from December, 1953, that all import licences should be on Cost and Freight basis rather than Cost, Insurance and Freight basis, so that importers have had to insure with companies registered in Pakistan. Among the invisible payments, items which are mainly connected with foreign trade,—refunds and rebates, insurance premia, freight charges, operating expenses of Pakistan air and shipping companies, and agency services together with interest and dividends—amount to over half the total.

19. In short, a large part of the payments on invisibles are for business purposes ; but the amounts received on business account are very much smaller. This largely accounts for the excess of total invisible payments over total invisible receipts. Certain payments of a consumer kind such as travel and educational outlay also exceed receipts, which is, however, inevitable.

**Balance of payments**

20. The balance of payments on current account from 1948-49 to 1954-55 is summarised in Table 9. The current account statement includes receipts and payments for services,

the so-called invisibles, as well as for commodities. It includes exchange transactions on both private and government accounts.

### TABLE 9

*Balance of payments on current accounts, 1948—55*

(Million rupees)

| | 1948-49 | 1949-50 | 1950-51 | 1951-52 | 1952-53 | 1953-54 | 1954-55 |
|---|---|---|---|---|---|---|---|
| *Receipts :* | | | | | | | |
| Exports ... ... ... | 805 | 870 | 2308 | 2187 | 1342 | 1303 | 1217 |
| Other receipts ... ... | 204 | 79 | 164 | 219 | 179 | 119 | 123 |
| Total ... | 1009 | 948 | 2471 | 2406 | 1521 | 1421 | 1340 |
| *Payments :* | | | | | | | |
| Imports on private account ... | 756 | 749 | 1273 | 1927 | 1214 | 734 | 736 |
| Imports and other payments on government account. | 564 | 340 | 433 | 598 | 481 | 489 | 355 |
| Other payments ... ... | 144 | 209 | 189 | 354 | 233 | 226 | 211 |
| | 1464 | 1298 | 1895 | 2879 | 1928 | 1449 | 1303 |
| Errors and omissions ... ... | —47 | +35 | —1 | +19 | +1 | ... | ... |
| Balance on current account ... | —503 | —315 | +576 | —464 | —408 | —28 | +37 |

*Notes.*—(1) Data are based on exchange records maintained by the State Bank of Pakistan. Transactions with India are included from 27th February 1951 and those with Nepal and Tibet from 16th March, 1951. Transactions with Afghanistan are excluded.

(2) Figures would not necessarily add to totals because of rounding off.

(3) Years are trade years, July to June.

*Source:* State Bank of Pakistan.

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21. Transactions with India, which were large, are included in the above statement only from February 1951 onwards, and those with Nepal and Tibet from March 1951. If the data on these transactions were available for earlier years and had been included in the statement, the balance on current account for these years would have been much different from that shown in Table 9. The data are relatively complete from 1951-52 onwards. Even then the goods which were shipped under foreign aid and loans, where no exchange transactions occurred, are not included.

22. The commodity trade figures given in Table 9, which are based on the record of exchange transactions, do not correspond exactly with the commodity trade figures given in Tables 2 and 6, which are based on the customs records. The records of the Customs Department are based on the entries made at the time goods leave or enter the country. The exchange transactions records are based on the actual receipt or payment of foreign exchange. The discrepancy between the two figures is partly explained by the time lag between shipments and payments, and partly by the differences in valuation and classification; in addition, the customs figures include, and the balance of payments figures exclude, imports on private account involving no current payment abroad, such as imports financed through deferred credits or machinery imported by foreign companies making direct investments in Pakistan.

23. This summary reveals the persistent and underlying weakness in the balance of payments : despite the restrictions on imports and other payments in force throughout the period under review except for the relatively short period of the open general licence, there has been a deficit in current account every year other than 1950-51, and 1954-55. The surplus in 1950-51 is attributable in the main to high export prices during the Korean boom. Despite the sharp decline in exchange earnings since 1952, the deficit in the balance of payments has been reduced, but only by severe restrictions on commodity imports and service payments.

Part of the pressure on the payments side has come from the demand for imports on private account, and part from the high level of government expenditure on account of development and defence. The large payments for invisibles, which substantially exceed receipts, have also been an important factor accounting for the deficit.

24. The difficult balance of payments position since 1951-52 is attributable in part to the drastic fall in export prices relatively to those of imports. Changes in the terms of trade are summarised in table 10 below.

TABLE 10

*Indices of Terms of Trade*

**(Fiscal Year 1948-49-100)**

| Calender Year | Index of unit value of imports (1) | Index of unit value of exports (2) | Indices of terms of trade : (2) as %(1) (3) |
|---|---|---|---|
| 1949 ... ... ... ... ... ... ... | 90.5 | 95·8 | 106·2 |
| 1950 ... ... ... ... ... ... ... | 75·0 | 88·6 | 118·0 |
| 1951 ... ... ... ... ... ... ... | 93·3 | 119·4 | 124·5 |
| 1952 ... ... ... ... ... ... ... | 83·9 | 87·6 | 103·5 |
| 1953 ... ... ... ... ... ... ... | 82·5 | 61·6 | 75·0 |
| 1954 ... ... ... ... ... ... ... | 81·8 | 65·9 | 81·5 |
| 1955 ... ... ... ... ... ... ... | 98·3 | 72·8 | 75·6 |

25. The terms of trade were most favourable from October 1950 to September 1951; this largely accounts for the improvement of the balance of payments during this period. The drastic deterioration after mid-1952 was a major cause of the severe exchange difficulties that followed. The fall in the index of the terms of trade by 30 per cent from the second quarter of 1951 to the fourth quarter of 1953 meant that a given quantity of physical exports could buy only half as much imports in the latter as in the former period. Since July 1952, the terms of trade have been worse than before the Korean boom.

## COMMERCIAL POLICY

26. Pakistan has successfully pursued a policy of diversification of her exports and imports in so far as the direction of trade is concerned. Negotiation of bilateral trade agreements and import and export controls were some of the devices used.

27. Dependence on imported consumer goods has been substantially reduced as a result of the development of number of consumer goods industries. The process of industrialisation was encouraged by the adoption of appropriate measures and policies in the commercial field. The rupee was not devalued when the sterling and a number of other currencies were devalued in September 1949. This held down the rupee costs of industrial machinery. Severe rationing of foreign exchange also has made a major contribution to the industrial programme in recent years. When foreign exchange shortage developed at the end of the Korean boom, imports of consumer goods were drastically reduced in order to provide foreign exchange for the imports of machinery. Restricted consumer goods imports have provided favourable conditions for the flow of investments into local undertakings. The rupee was devalued in July, 1955, when the marketing of

industrial products had become an important problem as a result of the establishment of new industries. The devaluation of the rupee will encourage exports abroad as well as production in the country of goods previously imported.

28. The export and import duties are levied mainly to serve as a source of revenue to the Government, but these duties have been used also to achieve the objectives of commercial policy. Whenever necessary, the export duties on certain commodities were reduced or abolished to encourage their export. Imports of machinery and raw materials required for industrial development were allowed either duty free, or were subjected to relatively lower rates of duty.

29. Price support was provided to jute and cotton when their prices fell sharply after the Korean boom, but this did not prove manageable : price support to jute and cotton, which are the mainstays of the economy, is like the superstructure trying to support the foundation on which it rests.

30. Pakistan signed the General Agreement on Tariffs and Trade and derives substantial advantages in her trade relations with other members of the GATT. The obligations assumed under the agreement are not inconsistent with the commercial policies needed in the interests of the country.

## Future policies

31. The account we have given of developments in the foreign trade and foreign exchange of the country since independence stresses the crucial significance of foreign exchange policies. Improvements of foreign exchange resources by promotion of exports, by development of local sources for goods and services now imported, and by economies in non-developmental imports, provide the key policies in the Plan period, as has been attempted in the recent past. The development programme in the fields of agriculture and industry is directed towards this purpose. The progress of the Plan will have to be kept under constant review to ensure its effectiveness for this purpose, and to make such revisions as may be found necessary from time to time.

32. Cotton and jute with the addition of jute manufactures will remain the major sources of export earnings. We also expect to see substantial quantities of cotton yarn and cloth available for export, especially in the later years of the Plan. Continued measures to reduce manufacturing costs and prices and to develop markets will be required, if these goods are to be exported. Export markets for raw jute and cotton are far from assured ; they are easy to lose and difficult to regain. Jute is continually threatened by substitutes, and cotton tends to be produced in excess of current demand. Price policies will play an important part in holding and expanding their export markets; the objective must be competitive prices and increasing yields per acre. Even in the face of substitutes, there is a good prospect of increasing the use of jute in a world with expanding production and trade, provided our prices make its use worthwhile. This calls for a careful study of the world market for jute, jute manufactures and their substitutes.

33. Greater diversification in production for export trade is essential. The country cannot continue to rely nearly exclusively on cotton, jute, and their products if the foreign exchange position and terms of trade are to be improved. Elsewhere we have made recommendations for the development of shipping, banking, and insurance services which would improve the position in respect of invisibles.

34. Foreign exchange will remain a scarce resource during the Plan period and must therefore continue to be rationed as at present. We cannot now foresee the time when the country will be able to abandon import licensing and exchange control. They are

essential for directing and regulating a growing economy yet in its early stage of development, with inadequate and irregular foreign exchange earnings. The success of the Plan would depend largely on the operation of these essential controls with the purpose of realising the development programmes. The magnitude of developmental effort and its direction is based on assumptions about the distribution of foreign exchange resources ; administrative failures to realise these assumptions must be prevented if the economy is to grow as contemplated in the Plan. Supplies of certain essential raw materials such as iron and steel are uncertain, as these materials are subject to recurrent shortages in the world market. It is therefore necessary that to ensure regular supplies of such essential materials, future commercial policy of the country should provide for long term procurement arrangements with the producing countries.

## FINANCIAL RESOURCES—EXTERNAL

35. A forecast of foreign exchange supplies and requirements for a five-year period presents many problems. The estimation of foreign exchange earnings is particularly difficult, since they depend to a large extent upon world market conditions which are outside the country's control. Jute and cotton, which will continue to be the principal exports are subject to wide price fluctuations. The export of Pakistani jute and cotton manufactures is also subject to the special uncertainties which face a country's products entering the world market for the first time. Other export commodities, such as hides and skins, wool and tea, are subject to substantial changes in price. The accuracy of any forecast of foreign exchange receipts will depend on the realisation of the assumptions on which it is based.

36. Imports can be forecast with a relatively greater degree of confidence than exports, because they depend largely on government import policies. The Government itself is a large user of foreign exchange, and its requirements under normal conditions can be foreseen with a comparatively small margin of error. The requirements of foreign exchange for consumer goods, raw materials and fuels, invisible imports and the development programme can also be foreseen with some degree of accuracy. Exchange and import control devices can be used to keep the foreign exchange expenditure within certain limits, but these devices cannot be used to increase the export earnings. Moreover, the prices of Pakistan's imports are, by and large, more stable than those of its exports.

### Foreign exchange earning

37. Estimates of export earnings by main categories are given in Table 11. They have been prepared on the assumption that world market conditions during the Plan period will remain more or less the same as in 1954-55.

TABLE 11

*Expected foreign exchange earnings, 1955—60*

| | (Million rupees) |
|---|---|
| 1. Raw jute | 3675 |
| 2. Jute manufactures | 1190 |
| 3. Raw cotton | 2020 |
| 4. Cotton manufactures | 600 |
| 5. Wool | 250 |
| 6. Hides and skins | 155 |
| 7. Tea | 210 |
| 8. Other commodities | 1090 |
| 9. Invisibles | 950 |
| Total | 10140 |

### Raw jute and jute manufactures

38. The forecasts of exports are based on the assumption that price policy will be framed to enable jute to meet the threat of substitutes, and to find expanding markets abroad. Price and export policy for jute needs serious attention if foreign markets are to be safeguarded. We assume that raw jute prices will be about the same as at the beginning of the Plan period, and that production will average 6·4 million bales.

39. We assume also that the jute manufacturing industry will be able to find sufficient markets for its products to keep the jute looms, installed or planned, busy, and that shortages of skilled operatives and power supply will be overcome. The achievement of these objectives will not be easy. The export of jute manufactures envisaged will amount to over one-quarter of all jute manufactures entering into world trade. A big effort will be required to establish market contacts and outlets in purchasing countries and to keep costs at a level at which export prices are competitive. We have assumed that prices of jute goods will remain at or fall slightly below levels at the beginning of the Plan period.

40. An increasing proportion of jute exports will be in manufactured form and a declining proportion will be exported as raw jute. This assumes the increasing utilisation of jute looms from the level of 5,000 on an average in 1955-56 to 11,000 on an average in 1959-60.

### Raw cotton and cotton textiles

41. We assume that the market for raw cotton will continue to be highly competitive. There has been a tendency for cotton production in the world to outstrip consumption since the end of the World War II, resulting in an accumulation of stocks; in some areas synthetic materials are providing stiff competition.

42. One of the key factors in the price of cotton is the support price maintained in the United States and its surplus disposal policy. A reduction in the United States support price may result in a proportionate reduction in the general export price of American cotton; similarly an increase in the volume of cotton sent abroad by the United States under its surplus disposal programme would depress cotton prices. Another factor affecting the market is that the continued rise in cotton production outside the United States may well depress the world price to levels substantially below the United States domestic price.

43. Pakistan's share of the world export market is only about 10 per cent, so that there should be no difficulty in disposing of supplies if sold at competitive prices. We have assumed a slight fall from export prices ruling early in 1955; this assumption will need to be reviewed in the light of the effects of recent changes in the world cotton market.

44. The growth of the cotton textile industry has led to an increase in the domestic consumption of cotton from approximately 100 thousand bales in 1950 to 600 thousand bales in 1954-55. This has already meant a reduction in exports of raw cotton. Such reduction will continue as domestic consumption increases, unless domestic production increases correspondingly. We assume that from 1955-56 to 1959-60 production of raw cotton will increase gradually from 1·6 million bales to 2·25 million bales per year.

45. The consumption of cotton cloth in the country is estimated to increase from about 12 yards per capita in 1955-56 to about 14 yards per capita in 1959-60. The cotton weaving capacity (mill and hand loom) already installed and to be installed during the Plan period will be in excess of domestic requirements. There will thus be a margin for export. The world market for cotton textiles is highly competitive; the industry will have to make

a very great effort to reduce the costs of production and improve the quality of its products in order to be able to export cotton textiles, in the quantities which will be seeking markets abroad. We have assumed that all the supplies available for export will be sold abroad.

### Raw wool

46. We have assumed that the export of raw wool will decline during the Plan period because of an increase in the use of wool in the growing woollen textile industry out running the expected increase in annual wool production from about 24 million lbs. to about 27 million lbs. by the end of the Plan period. With a fairly steady world market for wool, the price has been assumed to remain stable throughout the period at end-1954 levels.

### Hides and skins

47. The country is practically self-sufficient in leather products; exports of hides and skins are expected to decline slightly with a small increase in local consumption.

### Tea

48. Pakistan exports slightly more than half of its production of tea. During the three years 1951-52 to 1953-54 exports averaged 30·5 million lbs. Production is expected to increase by 15 per cent, the bulk of the increase taking place towards the end of the Plan period. Some of this increase will be absorbed by domestic consumption, but there may be a modest increase in exports. Prices at the end of 1954 were already unusually high in comparison with the earlier periods; we do not expect that these high export prices will continue, though with the growing world demand, they may remain somewhat above the levels of 1951—54.

### Rice

49. Substantial quantities of rice were exported in the first half of 1955-56 but with growing population and purchasing power, and the need for reserve storage, future exports are uncertain.

### Other items

50. Other exports include a large number of small items such as dry fish, resins, cotton seed cakes, surgical instruments, and sports goods. Substantial increases in the exports of these and other commodities can be expected partly due to the implementation of the development programme in industry and agriculture, and partly due to the favourable conditions created by the devaluation of the rupee. By the end of the Plan period, additional commodities such as paper and newsprint, should be added to this list; future export earnings will increasingly come from such manufactured commodities.

### Invisibles

51. Invisible receipts declined drastically in 1953-54 as compared with early years and rose slightly in 1954-55. During the Plan period, however, we forecast a gradual revival from the current low level. We appreciate the substantially increased contribution which tourists could make to invisible earnings. Pakistan has many places of natural beauty, archaeological interest and recreational value, but facilities for accommodation, for transport and for dealing with tourists are inadequate to exploit these places fully. The Railways have taken some interest in promoting tourism, and while this is useful, we do

not believe that it is adequate. The development to adequate and acceptable accommodations is a major pre-requisite to an expansion of tourism. Transport facilities, by air, car and boat, as well as train, which cater especially to tourists, need to be provided. Other services too need to be improved and expanded. No single transport agency is in a position to deal with all of these problems, though all of them can and should help. We believe that only a special agency, to deal with all aspects of tourism, can develop it fully. One of its first responsibilities should be to draw up a development plan for tourism.

52. The achievement of the export targets will require a great effort. In particular, the expansion of jute manufactures and of raw cotton production on the scale envisaged will not be easy. Provided the production targets can be reached and markets found for the goods, the estimates of exchange receipts are not extravagant, because they are based on relatively moderate price assumptions. Exchange earnings would be lower if world markets deteriorate substantially, and the conditions in the cotton market especially are uncertain. On the other hand, if the general market conditions remained as at present, shortfalls in earnings in some items would probably be offset by greater earnings in others, so that the total result would remain more or less unaffected.

### Summary

53. Over the Plan period we expect that total earnings will increase substantially as the result of the development programme. By 1959-60 we expect earnings will be about 400 million rupees greater than in 1955-56, if assumptions on world prices and domestic production hold true. A part of this increase will come as the result of increased cotton production and substantially greater exports in the form of cotton goods rather than raw cotton. Earnings from raw jute are expected to decrease appreciably, but this will be more than compensated by increased exports of jute goods. Earnings from other commodities and invisibles are also expected to increase.

### Foreign private investment

54. Foreign private investment has not been large. The amounts that have entered through purchase of rupees amounted to less than Rs. 80 million from July 1948 to December 1954. In addition, there have been unknown but apparently not insignificant amounts of foreign investment in the form of machinery and equipment imported directly by the investors. Private foreign investment has been increasing recently in connection with drilling gas wells and building pipelines. This is the area in which there appears at present to be considerable scope for future private investment. Large investments are also expected in the exploration for oil. Prospects in other fields do not appear to be large, but modest amounts may be invested, particularly in view of the liberal provisions made by the Government to encourage foreign investment, and the devaluation of the rupee. Roughly, an investment of 500 million rupees may be expected during the Plan period. This is the new gross investment, which might take place. At the same time there will be some outflow of foreign funds in order to repay deferred credits extended by foreign countries in the past. These remittances have been included under " invisibles ". Net foreign investment, after subtracting them, might be about Rs. 400 million.

### External grants and loans

55. Recently Pakistan has received substantial assistance in the form of external grants and loans. At the beginning of the Plan period, the amounts available for disbursement were about Rs. 450 million on account of aid and about Rs. 300 million on account of loans. It is not possible to forecast the extent of external aid in the form of grants and loans during the Plan period, since they are dependent on the policies of other countries.

**Use of foreign exchange reserves**

56. The foreign exchange reserves were drawn down to an extent equivalent to 1270 million post-devaluation rupees between July 1951 and the end of 1954. The reserves now held by the country are not much above a reasonable working level. This source of external finance is therefore not available for use during the Plan period.

**Foreign exchange requirements**

57. Requirements will depend on import policy. Because needs for foreign exchange are pressing, and supplies limited, the policy of strict austerity in imports must continue throughout the Plan period. On this assumption, foreign exchange requirements are estimated as in Table 12.

TABLE 12

*Foreign exchange requirements, 1955—60*

| | (Million rupees) |
|---|---|
| Consumer goods | 1670 |
| Raw materials and fuels and spares | 3880 |
| Non-development imports and other payments on government account | 1840 |
| Invisibles and deferred payments | 1750 |
| Total (non-development) | 9140 |
| Development programme, public sector | 3400 |
| Development programme, private sector | 1900 |
| Total development | 5300 |
| Grand total | 14440 |

58. Our estimate of requirements for consumer goods imports assumes the policy of austerity as the price of providing the foreign exchange needed for the development programme. But as domestic production of cloth, sugar, paper, drugs, and other commodities formerly imported increases and in many cases comes close to meeting the total domestic demand, the consumer's position will be eased.

59. A certain degree of restraint will also have to be exercised in the import of raw materials and fuels. But there is an important distinction between the imports of consumer goods and of raw materials. Reduction in the imports of consumer goods reduces the supplies of these goods by the amount of the reduction in imports. But reduction in the imports of raw materials such as iron and steel billets, sulphur and rubber, or in imports of fuel oil can reduce supplies of consumer goods and other goods by several times the amount of the reduction in imports. The census of manufactures in 1953 showed that contribution to national income (net value added) was about three times the value of the imported raw materials and fuels used by industry. Because severe scarcities of imported raw materials can have greatly magnified effects in restricting national income, employment and utilisation of plant, essential raw materials for utilising installed industrial capacity must have very high priority in the use of foreign exchange. In most industries, the estimated requirements for imports of raw materials and fuels are designed to permit effective

use of the capacity already installed or to be installed during the Plan period. In some sectors, however, imports are not proposed in sufficient volume to permit full utilisation of capacity. A part of the installed capacity in the few industries whose products are non-essential, and of low priority in terms of economic and social goals, may have to remain idle. We estimate that an import programme for raw materials and fuels to permit the operation of such industries close to capacity would require over Rs. 100 million per year in foreign exchange in addition to the figures in Table 12. The provision made in the Plan for imports of raw materials and fuels is, however, substantially larger than those in the recent years. In addition, as domestic production of cotton yarn, natural gas, coal and other materials increases, foreign exchange will gradually be available for greater imports of other raw materials and fuels.

60. The forecast for replacement parts and spares is based on anticipated requirements which will go on increasing as a result of increasing investment during the Plan period. Replacement parts and spares should be given very high priority in the use of foreign exchange, because it is obviously wasteful to permit a motor truck, a loom or a locomotive to remain idle for lack of some small but essential components. A small sum devoted to the import of repair parts can sometimes add more to effective industrial capacity than a large sum applied to the purchase of new machines.

61. It should be noted that these estimates are for current consumption requirements only. We believe there is a substantial and important requirement for building up working stocks, for two reasons:

(*a*) Stocks have been depleted and seem to be inadequate to ensure smooth and continuous functioning of important capacity.

(*b*) The greater industrial capacity provided in the Plan requires also a higher level of working stocks.

We have not included these requirements, which would be about Rs. 300 million if they are to equal 6 months use, because the foreign exchange required for their import is not in sight. We recommend that any additional foreign exchange resources which can be made available due to shortfall of imports below requirements, or due to additional earnings or aid, should be made available for raw materials and spares, to permit a reasonable re-building of working stocks.

62. It is not possible to reduce non-development supplies imported on government account beyond a point. Imports for the maintenance of railways, posts, telegraphs, and telephones have to be allowed. The import requirements of the defence forces have to be provided in the interests of national security and for meeting the international obligations assumed by the country. Minimum expenditures for maintaining Pakistani missions abroad have also to be met. But these expenditures on non-development imports should be reduced to the minimum; any increase is likely to prejudice the development programme.

63. The forecast on account of invisibles is based on the minimum requirements and on the assumption that vigorous measures will be adopted to save foreign exchange by providing locally, to the maximum extent possible, such services, as insurance, banking, and shipping. The expenditure on account of deferred payments is due to the liabilities that were incurred in the form of short-term credits; we have assumed that no additional commitments for short-term deferred payments will be made.

## Summary

64. Requirements of consumer goods imports will be reduced during the Plan period as their domestic production increases; by 1959-60 the requirements may be about 150 million rupees less than in 1955-56. This reduction will be partly offset by a slight increase

in Government non-development requirements and a large increase in the import of spare parts. Imports of raw materials will remain substantially unchanged in total, as the larger needs of some of the expanding industries such as chemicals, metal working, and motor vehicle assembly are balanced by increased domestic production of coal, natural gas, and fibres. On balance, import requirements for uses other than development may decline by about 100 million rupees over the Plan period.

65. The import restrictions especially for consumer goods and non-development imports on government account which we believe necessary, are all designed to make foreign exchange available for the development programme. We have calculated the foreign exchange requirements of the development programme as on the average about 42 per cent of the total cost for the public sector and about 52 per cent for the private sector.

66. Foreign exchange earnings, after meeting non-development requirements, will be inadequate to meet the requirements of the development programme.

Our estimates for the Plan period can be summarised as follows:

| | | (Million rupees) |
|---|---|---|
| Foreign exchange earnings ... ... ... ... ... ... ... | | 10,140 |
| Foreign exchange required for non-development imports ... ... ... ... | | 9,140 |
| Balance available for development ... | | 1,000 |
| Foreign exchange required for development : | | |
| Public ... ... ... ... ... ... ... | 3,400 | |
| Private ... ... ... ... ... ... ... | 1,900 | |
| Total ... | 5,300 | |

Over the Plan period our requirements for foreign exchange are likely to exceed availabilities by about 4,300 million rupees. Foreign private investment may provide about Rs. 500 million of this, and external loans and grants available, but not yet used at the beginning of the Plan period, will provide nearly Rs. 800 million in addition. This leaves a foreign exchange gap of about Rs. 3,000 million during the Plan period which must be filled if the development programme is to be carried out. While no predictions can be made, it appears possible that this amount might be made available through external loans and grants.

67. As the development programme is implemented, the margin between foreign exchange earnings and requirements for non-development purposes will increase. Foreign exchange available for development is expected to reach a level of 500 million rupees by the end of the Plan period. Moreover, with the development of the engineering industry, it should be possible to produce within the country more of the capital goods required for development, and so to reduce the foreign exchange component of development expenditure. By the end of the Plan period, the prospect is that the foreign exchange limitation on development will have greatly eased, and this improvement may be expected to continue in later years.

# CHAPTER 12

## POPULATION AND MANPOWER

1. The ultimate purpose of economic development is to provide a richer and fuller life for the people. In order to work effectively towards this end it is necessary to know something about the number of people who must be provided for and as much as possible about the probable rate of population growth, the age and sex distribution of the population, and how many are likely to live in urban areas and in villages. Information is also needed about the size of the labour force and its rate of growth, the occupational distribution and the relative proportions of men and women among the gainfully employed. Unfortunately, the country is seriously deficient in these types of information.

### Population growth, 1951—55

2. The starting point in estimating the present population is the population census 1951 which yielded a figure, as of February 28 of that year, of 75·84 million. It is generally believed that the urban population was under-counted to the extent of, perhaps, 5 per cent. If proper allowance is made for this under-enumeration, the figure that is generally accepted as reliable for February 28, 1951, is 76·23 million for the country as a whole, of which 42·15 million were in East Pakistan and 34·08 million in West Pakistan.

3. The natural increase of a population over a period of time is the difference between the births and deaths during that period in relation to the population at the beginning of the period. Unfortunately, the collection of statistics on both births and deaths is completely inadequate. Furthermore, reliable information is not available on the probable degree of under-counting. It is commonly supposed that the under-registration of births is somewhere between 30 and 50 per cent. of the actual number of births. The registration of deaths is as unreliable as that of births.

4. If there were available a series of census enumerations of the whole population, it would be possible to calculate the average annual rate of growth even in the absence of reliable data on births and deaths. However, only one census has been taken since independence. Therefore, it is best to calculate growth rates from the census of population of the Indo-Pakistan sub-continent and to correct the calculated growth rates to take account of observed differences between the rate of increase of Muslims and non-Muslims.

5. Table 1 below presents statistics on the increase of population in the sub-continent from 1891 to 1951.

TABLE 1

*Census enumeration of the population of the sub-continent*, 1891—1951

| Year | | Total population excluding Jammu and Kashmir | Gross increase | Increase due to inclusion of new areas and change in methods of enumeration | Estimated true increase | Decennial rate of increase |
|---|---|---|---|---|---|---|
| 1891 | ... | 277,000,000 | ... | ... | ... | ... |
| 1901 | ... | 281,000,000 | 4,000,000 | 2,900,000 | 1,100,000 | 0·470 |
| 1911 | ... | 300,000,000 | 19,000,000 | 1,800,000 | 17,200,000 | 6·170 |
| 1921 | ... | 302,430,000 | 2,430,000 | 100,000 | 2,330,000 | 0·870 |
| 1931 | ... | 334,000,000 | 31,570,000 | ... | 31,570,000 | 10·490 |
| 1941 | ... | 385,000,000 | 51,000,000 | ... | 51,000,000 | 15·470 |
| 1951 | ... | 432,000,000 | 47,500,000 | ... | 47,500,000 | 12·490 |

6. If the decennial rates of increase are converted into annual compound rates, the results for the three decades 1921 to 1951 and the average for the 20 years 1931—1951 are as shown in Table 2.

TABLE 2

*Average annual rates of population increase in the sub-continent,* 1921—51

| Period | Average annual per cent increase |
|---|---|
| 1921—31 ... ... ... ... ... ... ... ... ... | 0·99 |
| 1931—41 ... ... ... ... ... ... ... ... ... | 1·43 |
| 1941—51 ... ... ... ... ... ... ... ... ... | 1·17 |
| 1931—51 ... ... ... ... ... ... ... ... ... | 1·29 |

7. Because there has been a substantial decline in the death rate in India since the first World War, the rate of population increase during recent decades is more relevant to probable rates of growth during the next few years than the experience of earlier periods. The indicated rate of increase, however, for the decade 1931—41 is inflated by the fictitiously high population figures for 1941, which resulted from the attempts of both Muslims and Hindus to show the largest possible numbers, and this fictitious figure correspondingly lowers the indicated rate of growth for the decade 1941—51. We have, therefore, taken the compound rate of population increase for the two decades, 1931—51, *i.e.*, 1·29 per cent per annum.

8. The greater fertility of the Muslim than that of the Hindu population is well-documented. Mr. Kingsley Davis has estimated that the differential fertility of Muslims over Hindus is 12 per cent. (Kingsley Davis—" The Population of India and Pakistan ", page 81, Table 29). A special study conducted in the former Punjab by the Board of Economic Enquiry showed that the average number of children born to Muslim families was 5·18 as against 4·84 for Hindu families. A study of differential rates of increase in the Muslim and non-Muslim population of undivided India suggests that the annual rate of increase of Muslims was about 1·36 per cent during the period 1931—51 as compared to an average of 1·26 per cent for all others.

9. If we accept these figures as approximately relevant to conditions in Pakistan, it becomes possible, by applying these different rates in proportion to the relative numbers of Muslims and non-Muslims in the population, to estimate a growth rate for Pakistan. According to the 1951 census, 85·9 per cent of the population of Pakistan was Muslim and 14·1 per cent non-Muslim. Applying these weights gives us a figure of 1·35 per cent per annum as an approximate estimate of the rate of growth of the whole population.

10. The period 1931—1951 in undivided India, however, was marked by two disasters of sufficient magnitude to influence an estimate of population growth. Because influences of this magnitude are unlikely to affect the rate of growth during the period over which we wish to extend our estimates, it is necessary to eliminate their effect, so far as possible, in the earlier figures, in order to attain a clearer view of the true natural rate of growth. These disasters were the Bengal Famine of 1943, and the communal disorders of 1947, both of which inflicted a heavy loss of life on the Muslim population of the sub-continent. According to the Report of the 1943 Famine Enquiry Commission, the deaths directly attributable to the famine totalled approximately 1,100,000. The famine struck with particular severity in the preponderantly Muslim districts of East Bengal. There is no doubt that the number of Muslim deaths in the communal disturbances of 1947 was very large.

11. But for these two disasters, the Muslim population of the sub-continent would have been larger than shown in the census of 1951. This points to a higher rate of natural increase than 1·35 per cent. Besides, health conditions have appreciably improved since 1951, the census year. These conditions will be further improved as a result of the implementation of the health programme in the Plan. This implies a fall in the death rate leaving the birth rate more or less unaltered which in effect means a higher rate of increase. Taking all these factors into account, we are of the opinion that the average annual rate of natural increase in population during the Plan period 1955—60 would be about 1·4 per cent. In view of the limitations of the censuses of population and other relevant statistics, a high degree of accuracy for the rate of growth cannot be claimed. It is very difficult to forecast the increase in population due to net immigration. However, we hope that the average annual increase due to net immigration will be only of the order of 50,000.

12. Taking into account the natural increase as well as the increase due to net immigration since 1951, we estimate that the population in mid-1955 was 82·24 million, 45·70 million in East Pakistan and 36·54 million in West Pakistan. The increase in the population from 28th February, 1951 to mid-1955 is explained partly by natural increase and partly by net immigration. The projection of the population during the Plan period, based on the above assumptions, is as follows :

### TABLE 3

*Population projections for* 1955—1960

(Millions)

| | East Pakistan | West Pakistan | All Pakistan |
|---|---|---|---|
| Population mid-1955 ... ... ... ... ... | 45·70 | 36·54 | 82·24 |
| Population mid-1956 ... ... ... ... ... | 46·34 | 37·10 | 83·44 |
| Population mid-1957 ... ... ... ... ... | 46·99 | 37·67 | 84·66 |
| Population mid-1958 ... ... ... ... ... | 47·65 | 38·25 | 85·90 |
| Population mid-1959 ... ... ... ... ... | 48·32 | 38·83 | 87·15 |
| Population mid-1960 ... ... ... ... ... | 49·00 | 39·42 | 88·42 |

13. A population of over 88 million in 1960 represents an increase of 7·5 per cent over the five years, and will result in a large increase in our requirements for food, clothing and other necessities even if there were to be no increase in *per capita* income. We must at the same time recognise that 88 million is probably the minimum figure. Pakistan, with other countries in Southern Asia, confronts a serious population problem.

14. We have not attempted to reach any firm conclusion about the extent of increase in the population growth in the next two or three decades. Nor have we attempted to propose policy recommendations in this field. There are many forces at work whose potential effect is not clear. Historically, as *per capita* incomes and the level of education in a country have risen, birth rates have declined. Also, many countries have adopted policies of family planning, which have had some effect on rates of population growth.

15. Currently several countries confronted with the problem of increasing population are pushing vigorous research and publicity programmes in family planning in the hope of checking the rate of growth. The Board makes no recommendation on family planning as an approach to the population problem. Many people in the country hold that family planning is contrary to the tenets of Islam, though a contrary view is propounded with equal authority. A great deal of study is now being devoted around the world to problems of population growth in relation to economic development, and it is to be hoped that useful conclusions may be available soon. While we make no recommendations on these matters, we do feel that they may be of great significance over the next several five-year periods. The country must appreciate that population growth is a rock on which all hopes of improved conditions of living may founder. It admits of no approach except that the rate of growth must be low.

### Age distribution of the population

16. Unfortunately the age reporting in the 1951 census is inadequate and subject to a substantial measure of distortion. The distortion is evident from an examination of the sex ratios (males per 100 females) for each of the five-year groups*. The sex ratio is 101·4 in the age group 0—4, rises to 107·1 in the next age group 5—9, then to 120·4 in the age group 10—14, after which there is a sudden fall to 101·6 in the age group 15—19. The sex ratio then resumes its rise until it reaches 125·4 in the age group 30—39. It falls slightly in the next age group and then reaches a maximum value of 138 in the age group 45—49. The rise in the sex ratios for successive five-year age groups could, perhaps, be explained by high maternal deaths among the females of child-bearing age but the rise and fall of sex ratios for the age group below 15—19 must be due to under-enumeration of females or to the mis-statement of ages in those particular age groups, or both. Once women have passed the child-bearing age, there is a marked improvement in the sex ratio as shown by a decrease in the sex ratios for the age groups 50—54 and 55—59 in comparison with that the earlier age group 45—49.

17. We have attempted to eliminate the effect of this distortion on the age distribution by calculating the numbers in the various age groups on the assumption of a smooth age distribution of the population. The percentage distributions for each of the ten-year age groups for the observed and corrected distributions is given in Table 4 below. The Table also shows the population in absolute numbers for each ten-year age group as observed in the 1951 census and as corrected to eliminate distortion.

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*"Population Estimates and Forecasts for Pakistan," Central Statistical Office (1954).

### TABLE 4

*Age distribution of the population in 1951*

| Age group | Percentage | | Population in thousands (1951 census) | |
|---|---|---|---|---|
| | Observed | Corrected | Observed | Corrected |
| All groups ... ... ... ... ... | 100·0 | 100·0 | 73,881 | 73,881 |
| 0—9 ... ... ... ... ... ... | 28·3 | 28·1 | 20,943 | 20,761 |
| 10—19 ... ... ... ... ... ... | 25·0 | 22·3 | 18,484 | 16,475 |
| 20—29 ... ... ... ... ... ... | 15·6 | 17·2 | 11,523 | 12,708 |
| 30—39 ... ... ... ... ... ... | 11·7 | 12·2 | 8,606 | 9,013 |
| 40—49 ... ... ... ... ... ... | 8·5 | 8·7 | 6,304 | 6,428 |
| 50—59 ... ... ... ... ... ... | 5·9 | 5·8 | 4,351 | 4,285 |
| 60—79 ... ... ... ... ... ... | 2·9 | 3·5 | 2,159 | 2,586 |
| 70 and over ... ... ... ... ... | 2·1 | 2·2 | 1,511 | 1,625 |

*Note.*—The absolute figures given in this Table are less than the 1951 census figure of 75·84 million quoted in paragraph 2 above, because the Table refers only to the numbers actually enumerated, which excludes non-Pakistanis as well as the estimated population of the Frontier Regions.

18. The combination of very high birth rates and high death rates produces a population that is extraordinarily young ; the average age is low. Nearly 30 per cent. of the population is under 10 and over 50 per cent. is under 20. On the other hand, less than 20 per cent. is over 40. The relation of births and deaths in Pakistan has important consequences for the size of the labour force. High infant mortality rates have the effect that many children die before they reach an age at which they can become economically productive. The high death rate throughout the productive age brackets means that men and women die in large numbers long before they have completed their potentially useful life. Although average life expectancy at birth has been rising throughout the sub-continent for the last half century, the average for the decade 1931—41 was only 31·8. This figure should be compared with average life expectancy of 60 and more in various western countries. The repercussions of the age distribution in Pakistan on the labour force are examined further below.

## The labour force

19. The size of the labour force is primarily determined by the number of the population and its age distribution. There are also a number of relatively minor considerations that deserve mention. Since a higher proportion of males than females are gainfully employed, the sex distribution of the population has a bearing. The ratio of males to females in Pakistan is unusually high even when correction is made of distortions in census reporting. The main reason appears to be the extraordinarily high mortality rate of women in child birth. The degree of urbanisation has some slight effect on the size of the labour force, because a smaller proportion of women and children are gainfully employed in urban than in rural areas. Only about 10 per cent. of the population lives in cities. Finally, custom and tradition with respect to employment have some effect particularly on the number of women entering the labour force.

20. The quality of the labour force is influenced by nutrition and health conditions, by the extent of education, and by the numbers and kinds of skilled personnel available.

21. According to the census of 1951, the civilian labour force (which includes all persons over 12 years of age who are self-supporting or earning dependents or seeking work) was 30·7 per cent. of the total enumerated population.

### TABLE 5

*Population according to economic status February*, 1951

(Millions)

| Status | Pakistan | | East Pakistan | | West Pakistan | |
|---|---|---|---|---|---|---|
| | Number | Per cent. | Number | Per cent. | Number | Per cent. |
| **Total population** ... ... ... | 73·9 | 100·0 | 41·9 | 100·0 | 32·0 | 100·0 |
| Civilian labour force. ... ... | 22·7 | 30·7 | 12·9 | 30·7 | 9·8 | 30·7 |
| Agricultural ... ... ... | 17·1 | 23·1 | 10·7 | 25·6 | 6·4 | 20·1 |
| Non-agricultural ... ... ... | 5·6 | 7·6 | 2·2 | 5·1 | 3·4 | 10·6 |
| Self-supporting but not in civilian labour force. ... ... ... | 0·4 | 0·6 | 0·1 | 0·3 | 0·3 | 0·9 |
| Dependents ... ... ... | 50·8 | 68·7 | 28·9 | 69·0 | 21·9 | 68·4 |
| Under 12 years ... ... ... | 26·8 | 36·0 | 15·2 | 36·3 | 11·4 | 35·8 |
| 12 years and over ... ... | 24·0 | 32·7 | 13·7 | 32·7 | 10·4 | 32·6 |

*Source* : Census of Pakistan, 1951.

*ote.*—Excludes non-Pakistanis and estimated population of Frontier Regions. See also the Note to Table 4. If the total population in 1951 was 76·23 million, of which the labour force was 30·7 per cent., the absolute numbers of the labour force would be 23·4 million.

22. The census also showed that the labour force is overwhelmingly masculine. Of the total population, 39·1 million were males, of whom 21·4 million, or 54·7 per cent. were in the civilian labour force ; 34·7 million were females, of whom only 1·3 million, or 3·7 per cent were in the civilian labour force. It should be noted, however, that there may have been serious under-enumeration of the number of women in the labour force.

23. By far the largest part of the labour force was engaged in agriculture. Three-quarters of the total labour force in Pakistan were so engaged, the proportion in East Pakistan being 83 per cent. and in West Pakistan 66 per cent.

24. Very little is known about the number of persons in the labour force having different kinds of skills and training. According to the 1951 census the proportion of persons over 12 years old who were literate to the extent of being able to read clear print was 23 per cent. However, since literacy is higher among males than among females, and the labour force is predominantly male, literacy in the labour force is higher than in the population as a whole ; it can be estimated from the census as about 29 per cent. This gives some indication of the number of persons with a minimum of literary skill, but is not a reliable guide to the distribution of other kinds of skill. There are certainly many illiterate persons with a high degree of manual skill—,in village industries, for example, or the mechanical trades. At the time of the census, 28 per cent. of persons in the non-agricultural labour force were classified as skilled operatives, while in the first phase of the manpower survey conducted by the Ministry of Labour early in 1955, 32 per cent. of those employed in large-scale establishments were found to be skilled or semi-skilled.

### Changes in the labour force

25. Until recently there were no data on which to base estimates of changes in the labour force. In the later part of 1955, however, the Ministry of Labour's manpower survey organisation conducted a sample survey of households in rural and urban areas in both Wings. Preliminary tabulations from this survey indicate that the proportion of persons in the labour force, which was 30·7 per cent in 1951, has risen in East Pakistan to 31·6 per cent. and in West Pakistan to 32·1 per cent. However, the census data and the sample survey data are not strictly comparable, since the definitions used were not identical ; for example, all persons under 12 years of age were excluded from the labour force in the census, but they were included in the labour force in the sample survey data if working 15 hours or more per week.

26. It is not possible to project with precision the likely increase of the labour force during the Plan period. It does seem reasonable to suggest, however, that the labour force is likely to grow by about 2 million persons during the Plan period, which is an annual increase of about 400,000. These are large figures, and indicate the rapid changes taking place in the country.

27. A growing labour force represents both an opportunity and a challenge ; these extra workers can contribute to the expansion of national production, but they can do so only if they find employment. In Chapter 27 we discuss the probable effects of the Plan on employment opportunities in the country. In the present state of knowledge about employment and unemployment in the country it is not possible to make exact estimates. Nevertheless, for the reasons stated in Chapter 27 we think the rise in employment opportunities over the Plan period is likely to be at least as large as the rise in the number of persons seeking employment.

28. It is characteristic of a developing economy that the proportion of workers engaged in non-agricultural activities tends to rise and the proportion engaged in agriculture correspondingly tends to fall. The sample survey data referred to above indicate that such changes are taking place in the country quite rapidly.

29. Preliminary tabulations show results in comparison with the 1951 census as given in Table 6.

TABLE 6

*Industrial distribution of civilian labour force,* 1951 *and* 1955

| | East Pakistan | | West Pakistan | |
|---|---|---|---|---|
| | Census 1951 | Sample manpower 1955 | Census 1951 | Sample manpower 1955 |
| | (Percentages) | | | |
| Agriculture (including forestry and fishing) ... ... | 84·0 | 73·2 | 66·0 | 53·9 |
| Mining and manufacturing ... ... ... | 4·0 | 7·1 | 9·3 | 15·3 |
| Building and construction ... ... ... ... | 1·1 | 0·4 | 0·5 | 4·3 |
| Public utilities (Electricity, water, gas, etc.) ... ... | ... | 0·1 | 0·1 | 0·2 |
| Trade and commerce ... ... ... ... | 4·0 | 5·7 | 6·8 | 8·5 |
| Transport ... ... ... ... ... | 1·5 | 1·7 | 1·2 | 2·4 |
| Services (Government, domestic and personal) professional and arts. | 3·9 | 9·7 | 8·4 | 14·2 |
| Unclassified* ... ... ... ... ... | 1·5 | 2·1 | 7·7 | 1·2 |
| | 100·0 | 100·0 | 100·0 | 100·0 |

*Figures under the first and third columns include unemployed.

These figures cannot be regarded as thoroughly accurate for the reasons stated above ; the sample survey is necessarily subject to some margin of error, particularly where small proportions of the total are concerned, and the definitions used for the census and for the survey were not precisely the same. Nevertheless, the data are certainly reliable enough to provide impressive support to the conclusion that the proportion of workers in non-agricultural pursuits is rising rapidly and the proportion engaged in agriculture is falling. The rise in the proportion of workers engaged in manufacturing and in services is particularly striking. These changes can be expected to continue during the Plan period, although the data do not permit detailed estimates to be made.

30. While precise figures are lacking, it is clear also that the quality of the labour force is steadily improving. In 1954-55 it is calculated that almost exactly half of the children between the ages of six and eleven were in schools ; in a few years, the percentage of literacy among persons in the labour force will begin to rise appreciably. Furthermore, over 250,000 more children are in secondary schools today than there were eight years ago, and the number of technical training institutions of all kinds is growing rapidly. All this indicates that the average level of education and training among persons in the labour force will continue to rise steadily.

31. The situation is less clear in respect of improvements in health. It seems doubtful whether any major improvement has taken place in recent years in the physical vitality and stamina of most workers. It can be expected, however, with a steadily enlarging health programme, that the incidence of debilitating and infectious diseases among workers will diminish.

### Research in population and manpower

32. This chapter has made evident that the country is seriously lacking in reliable information about the population and the labour force. As a result, we are badly handicapped in trying to decide what the development programme should be, and what its likely results will be. Two major types of study are needed to make a start on remedying these deficiencies.

33. First, there is need for a series of reliable currect data, based on sample surveys, concerning the size of the population and its major characteristics, such as age, sex and geographical distribution, and the size and distribution of the labour force. Only a series of surveys, continuing steadily over a long period of time, can provide the basic data needed for analysis and planning. The Central Statistical Office, the Ministry of Labour (which has made a promising beginning in manpower surveys), and the provincial statistical organisations, all have a part to play in such a programme, and we recommend that these agencies should draw up and execute a co-operative scheme for developing an organised and comprehensive set of surveys. In addition, organised work should be undertaken to improve vital statistics and prepare tables of life expectancies.

34. Second, there is need for scholarly research, in at least two universities, one in each Wing, into questions of growth and change in the population and labour force. This is a difficult field, requiring the services of skilled mathematicians, statisticians, and social scientists, and it may be desirable to obtain in the beginning the advisory services of specialists from abroad. We commend this problem to the attention of the universities and urge early action as a part of the process of developing their research programmes.

S.Haque

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GOVERNMENT OF PAKISTAN
PLANNING BOARD

# THE FIRST FIVE YEAR PLAN
# 1955-60

(DRAFT)

VOLUME II

MAY, 1956

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## EXPLANATION OF TERMS USED

In Pakistan notations are expressed in 'Lakhs' and 'Crores' and rarely in 'Millions'. In this publication they are expressed in 'Millions'. In the chapter "Outline of the Plan" notations are shown in 'Lakhs' and 'Crores'. These and such other terms are explained below :—

*Notation*

One lakh (1,00,000) = One hundred thousand (100,000)
Ten lakhs (10,00,000) = One million (1,000,000)
One crore (1,00,00,000) = Ten million (10,000,000)

*Unit of measurement*

One maund = $82\frac{2}{7}$ lbs
One bale (cotton) = 392 lbs
One bale (jute) = 400 lbs

*Exchange rate*

One Pakistani rupee (or Re.) = 1 sh. 6 d. or 21 U.S. Cents

Rupees (or Rs.) 1,00,000 (lakh) = £. 7471 or $ 21,000

*Years*

Calendar year = January to December
Fiscal year = April to March
Trade year = } July to June.
Agricultural year = }

**Administrative Units**

There are two Provinces, East Pakistan and West Pakistan. For administrative purposes each province is divided into 'divisions', and divisions into 'districts'. In East Pakistan a district is divided into sub-division, circle, thana, union and finally the village. In West Pakistan a district is divided into tehsils (or talukas) after which there is no uniformity except as regards village.

GOVERNMENT OF PAKISTAN

PLANNING BOARD

# THE FIRST FIVE YEAR PLAN

1955-60

(DRAFT)

VOLUME II

MAY, 1956

# LETTER OF AUTHORITY

PLANNING BOARD,

*Karachi, the 10th May,* 1956.

To

The Prime Minister,
Government of Pakistan,
Karachi.

Sir,

You have considered in Cabinet the " Outline of the plan " in draft and authorised the publication of the First Five Year Plan for inviting public comments. We submit the draft herewith and request your authority to release it.

We remain,
Your most obedient servants,

(Sd.) Zahid Husain
CHAIRMAN

(Sd.) Mafizuddin Ahmad
MEMBER

(Sd.) Said Hasan
MEMBER

I agree.

(Sd.) Mohamad Ali
PRIME MINISTER

# *ERRATA*

## (Volume II)

*Note.*—This list is not intended to include all typographical errors, but only those which might give a misleading or inaccurate impression to the reader.

| Page | Para. and/or sub-para. | Line | Nature of correction |
|---|---|---|---|
| 2 | 5 | 2 | *Read* " to " *for* " at ". |
| 3 | ... | 7 | *Read* " the " *for* " that ". |
| 3 | ... | 13 | *Read* " They " *for* " Whey ". |
| 3 | 9 | 4 | *Read* " then " *for* " than ". |
| 6 | ... | 8 | *Read* " 46 " *for* " 43 ". |
| 21 | 12 | 8 | *Read* " floods " *for* " moods ". |
| 25 | 20 | 5 | *Read* " fail " *for* " fall ". |
| 26 | Table 5 | Col. 4 | Against rice, *read* " 9215 " *for* " 9250 ". |
| 26 | " | " | Against Total foodgrains, *read* " 14,550 " *for* " 14,580 ". |
| 26 | " | Col. 3 | Against Jute, *read* " 5,565 " *for* " 5,592 ". |
| 26 | " | Col. 4 | Against Jute, *read* " 6,400 " *for* " 6,070 ". |
| 26 | " | Col. 5 | Against Jute, *read* " 15 " *for* " 9 ". |
| 26 | " | Col. 3 | Against Sawn and Square, *read* " 5 " *for* " .5 ". |
| 26 | Foot note | ... | Against Jute, *read* " 1950-51 to 1954-55 excluding 1953-54 " *for* " 1955-56 ". |
| 27 | 23 | 1 | *Read* " 6.40 " *for* " 6.07 ". |
| 67 | 251 | 4 | *Read* " banks " *for* " bands ". |
| 74 | ... | 1 | *Read* " 351 " *for* " 350 ". |
| 85 | Table 13 | 1 | *Read* " 1955-60 " *for* " 1955-56 ". |
| 102 | ... | 5 & 6 | *Read* " accountant " *for* " actant ". |
| 135 | 84<br>sub-para. (b) | 3 | *Read* " farmed " *for* " framed ". |
| 148 | Table 3<br>Col. 1955-60 | 2 | *Read* " 424.3 " *for* " 42.43 ". |
| 166 | 35 | 14 | *Read* " 73 " *for* " 43 ". |
| 185 | Table 6 | Col. 6 | Against 7 tubewell Schemes, *read* " 14.8 " *for* " 15.8 ". |
| 209 | 16 | 4 | *Read* " mine-owner " *for* " time-owner ". |

P.T.O.

| Page | Para. and/or sub-para. | Line | Nature of correction |
|---|---|---|---|
| 209 | 18 | 4 | *Read* " were " *for* " where ". |
| 212 | 31 | 5 | *Read* " medium-sized " *for* " medium-single ". |
| 270 | sub-head | ... | *Read* " Agricultural Processing " *for* " Agricultural Procession ". |
| 283 | Table | 10 Col. 1952-53 | *Read* " 7.9 " *for* " 7.0 ". |
| 360 | 6 | 6 | *Read* " 12,449 " *for* " 15,283 ". |
| 360 | 6 | 7 | *Read* " Chittagong, Lyallpur, Sargodha, and Quetta " *for* " Peshawar, Lahore, Rohri, and Hyderabad ". |
| 363 | 12 | 5 | *Delete* the words " as shown in Chart 1 ". |
| 374 | 26 | 3 | *Read* " building needs " *for* " buildin ngds ". |
| 499 | 23 | 6 | *Insert* " community " in between " urban " and " development ". |
| 513 | 90 | 8 | *Read* " let " *for* " lot ". |
| 519 | 114 | 17 | *Read* " Two " *for* " The ". |

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# INTRODUCTION

1. The Government of Pakistan announced the appointment of the Planning Board and its terms of reference in their Resolution No. 2(24)PG/53, dated 18th July, 1953, which is reproduced below:

" Ever since the attainment of Independence, the Government of Pakistan has been conscious of the need for rapid economic development of the country. The Government is aware of the aspiration of the people for a full life and is pledged to strive to achieve it.

" In spite of the grave economic and financial problems which beset the Government of Pakistan soon after Independence, a Development Board was established early in 1948 to deal with questions of economic development, and a number of projects were undertaken on the recommendation of the Board. In 1950 a Six-year Development Plan was formulated and embodied in the Colombo Plan for Co-operative Economic Development in South and South East Asia. This was essentially an outline plan and delineated only a broad pattern of development. The time has now come to prepare a more comprehensive National Plan of Development and the Government of Pakistan has decided to set up a Planning Board with the purpose and terms of reference set forth below :

" The economic and social objectives of Government's policy are well-known. They are to develop the resources of the country as rapidly as possible so as to promote the welfare of the people, provide adequate living standards, and social services, secure social justice and equality of opportunity and aim at the widest and most equitable distribution of income and property.

**Terms of reference :**

(i) To review the development that has taken place since Independence.

(ii) To assess the resources—material and human, which can be made available for development during the next 5 years beginning from April, 1954.

(iii) To prepare a national plan of development based on the fullest possible utilisation of these resources for implementation in a period of 5 years from Ist April, 1954, as a step towards the attainment of the economic and social objectives of Government's policy.

(iv) To make proposals regarding the administrative machinery best calculated to assure the successful implementation of the Plan.

(v) To make any other recommendations which in the opinion of the Board will contribute towards the success of the Plan.

" The Board will consist of Mr. Zahid Husain, till recently the Governor of the State Bank of Pakistan who will be the Chairman and two members whose names will be announced shortly.

" The Board will be assisted by such advisers and consultants as may be found necessary.

" It is hoped that the draft plan will be completed by the end of 1954 ".

2. It was subsequently decided that the five-year period to be covered by the Plan should commence from Ist April, 1955, instead of Ist April, 1954. Mr. Mafizuddin Ahmad and Mr. Said Hasan were appointed Members of the Board in July and August, 1954 respectively. Mr. Mafizuddin Ahmad was a member of the East Bengal Government during 1948-54. Mr. Said Hasan is a Member of the Board in addition to his duties as Secretary to the Government of Pakistan in the Ministry of Economic Affairs.

3. The Board began to recruit an expert staff in the latter part of 1953. By July, 1954, we had assembled the minimum number of Pakistani and foreign experts needed to make a start, and have worked since then to discharge the duties laid upon us.

4. In this first attempt to formulate a comprehensive and integrated national development programme, we have had to work within the situation as we found it, and to frame a Plan with the materials that were available. Ideally, the national planning organisation should have available to it plans prepared by all the ministries and departments concerned, for developments at the local, provincial and national levels, as well as their views regarding objectives to be aimed at in their respective spheres and the policies to be followed to gain these objectives. At the national level, the task should primarily be the assessment of total resources, the formulation of national policies, the determination of priorities after weighing competing claims against available resources, the selection of the best pattern of development and the co-ordination of the various development schemes in a national Plan. No such ideal arrangement was possible during the preparation of this draft Plan. Many of the proposals submitted to the Board were soundly conceived and fully worked out, but others were found to be incomplete and essential information was lacking. There were many essential purposes for which no proposals were received. Gradually a number of gaps were closed, but there remain many fields in which the Board have received neither schemes nor adequate information.

5. This situation is explained by the insufficient appreciation of planning in the country and the inadequacy of planning staffs in the Provinces or in various Departments at the Centre. There is no large portfolio in reserve of properly formulated schemes ready for execution, nor are there expert units for reviewing schemes with a view to maximum feasible development, or for relating requirements in particular sectors to the available physical resources. One of the important benefits of preparing a comprehensive development Plan has been to increase the awareness of the need for planning in the country. As the climate for planning becomes more favourable, development planning for particular fields, departments and areas, as well as for the Provinces and the country as a whole, will improve and draw forth greater thought and energy and acquire more realism.

6. The deficiencies in information were met in part by visits of the Board's officers to Provincial and State headquarters and to development sites and by discussions with the authorities concerned. The gaps in some sectors were filled in part by proposals of our own, or by setting aside block provisions in the Plan, against which schemes could be later prepared. In addition we have established a special reserve for East Pakistan, where the gap was found to be particularly large.

7. We visited Dacca and Lahore in April and June, 1955, to discuss with the East Bengal Government and the West Pakistan Administrative Council respectively the programmes we had tentatively proposed to include in the Plan. After the advent of the popular Government of East Bengal, the Board visited Dacca again in October, 1955, and in January, 1956, for further discussions. We also held discussions with representatives of industry and numerous individuals prominent in various departments of national life.

8. A sizeable programme of development was under way when the Board started work, and many development schemes were in various stages of implementation. Recognising the need for completing the work in progress as early as possible, we have included in the Plan all schemes that were under execution, a measure which was justified on their merits also. Other schemes have been started during the time the Plan was in preparation, generally after our comments had been taken into account. Necessarily, therefore, the Plan in its early years must largely reflect the pattern of the development already under way. The major changes in pattern and emphasis which we are recommending will take effect gradually during the Plan period.

9. In order to accomplish a smooth transition two special measures were taken for giving consideration to the views of the Board during the preparation of the Plan. First, the Government gave us the opportunity, while the Budget for 1955-56 was being prepared, to express our views on the proposals for development that were being considered for inclusion in the Budget. We studied these proposals in the light of our tentative views on the size, objectives and priorities of the Plan, and submitted our conclusions to the Government. They were given full weight in determining the size and pattern of development provided in the federal budget 1955-56. This process was repeated when the 1956-57 Budget was being prepared ; the Board's Report was then nearing completion. The 1955-56 and 1956-57 Budgets thus reflect in a limited measure the programmes embodied in the Plan. Full effect to our proposals can be given in 1956-57 after the approval of the Plan by the Government.

10. Second, co-ordination has been arranged between the Board and the Planning Commission, which has had the responsibility for examining development schemes and reporting to the Economic Council. The Planning Commission has kept the Board informed of the schemes it has received, and after our technical staff had been assembled, we were given the opportunity to express our views on all schemes placed before the Commission.

11. Successful planning at the national level requires reasonably accurate statistics in important fields, such as production, prices, national income, savings, investment, and manpower. Substantial progress has been made since independence in the collection, compilation, and publication of statistics, but much remains to be done. We were able to make our own rough estimates in some but not many cases where statistics were lacking. There are many gaps that need to be filled as the statistical organisations are expanded and improved in the future.

12. Some degree of freedom from anxious care about political problems is necessary for national planning, and a favourable environment has been created by the passing of the Constitution. But whatever the political conditions, planning and development are essential and cannot wait. Throughout most of the time that our draft Plan was in preparation, large political and administrative changes were in the offing. One of the most important was the amalgamation of the various administrative units of West Pakistan into a single Province. We had, by then, received most of the available material from the former administrative units ; this has made it necessary in some parts of the Report to refer to some of the special conditions and problems in terms of the former administrative areas. Further more, the Plan was prepared while the Constitution of the country was under consideration, and our Report is written largely on the basis of the administrative arrangements which existed before it came into force. Some adjustments will be required to take account of the changes in the responsibilities of federal and provincial governments ; but the size, the pattern and the contents of the programme will remain unaffected.

13. These conditions—lack of adequate planning arrangements in Central and Provincial departments and agencies, inadequate statistics, and rapidly changing political and administrative arrangements—have necessarily affected the Board's work. However, we present the first draft of the National Development Plan with the conviction that it is sound and complete in all major respects, and sets forth a realistic and essential programme for the attainment of rapid and widespread progress towards a diversified and dynamic economy.

14. This Report has been divided into five parts. Part I explains the social and economic objectives of Government's policy which have guided us in formulating the Plan and presents an outline of the Plan. In Part II, an attempt is made to state the fundamental concepts and methods of development embodied in the Plan. Part III states the Board's

views on the improvements in public administration required for the success of the Plan. Part IV assesses the financial resources—both internal and external—potentially available for development during the five-year period, and the likely course of population. Part V sets out the programmes of development, the priorities we recommend, and the major policies we advocate for the period of the Plan in each main field—agriculture, irrigation, power, industry, transport and social services.

15. This Report is a first draft of the five-year Plan, published in the expectation that extensive public discussion will point the way to improvement. Planning in a democratic society can be successful only through the participation of the people as a whole. They must be able to feel that the Plan embodies their hopes and aspirations, and is not dominated by sectional interests. Democratic planning must aim at satisfying the material, social and spiritual urges of the people. Only then can it win their full support and willing co-operation, born of their belief in the soundness and feasibility of the Plan and the honesty of purpose underlying it.

16. The Board, therefore, hopes for the widest possible consideration and discussion of the draft Plan. We shall welcome all comments and suggestions. We hope in particular that such institutions as chambers of commerce and industries, learned societies, universities, trade unions, local self-governing bodies, co-operative societies, and the Press will give us their views on this Report. We desire to make all possible improvements in the draft Plan before presenting our final report to the Government with the recommendation that it be adopted as the National Plan for 1955-60.

17. Even when adopted, the Plan will not embody a rigid programme to be followed without change for the whole period of the Plan. Planning is a continuous process and the Plan must continue to be improved as more information comes to hand and as the knowledge, wisdom and awareness of the people and the administration are brought increasingly to bear upon it. Development is a social process and its planning needs the collective wisdom and conscious co-operation of all elements in society. The Plan must be conceived as a basic framework of policies and programmes, sufficiently detailed to provide firm guidance for action in each field, but sufficiently flexible to permit adjustment to current conditions, especially at the time of Budget preparation. Such adjustments must, of course, be made only after systematic consideration and for good reason.

18. The preparation and adoption of a plan are the beginning, not the end, of the development process. A plan has meaning only if it is put into effect. The success of the Plan will depend upon the cultivators in the fields and the workers in the factories, upon businessmen and landowners, upon government officials and village leaders, upon public spirited citizens in all walks of life — in short, upon the many thousands of people in the country who have power or influence to commit human energy and material resources to action. If they understand, accept, and are guided by the Plan, we have a strong conviction that a new day of steady and purposeful progress will dawn for the country. The implementation of the Plan will present the Government, the administration and the people with some of their most difficult problems in the Plan period.

19. We take this opportunity of thanking the staff of the Board, both Pakistani and foreign, who have worked devotedly and whole-heartedly on this national assignment. We thank the Ford Foundation and Harvard University for the services of the foreign experts, whose contribution to the preparation of the Plan has been most valuable. We thank also the many officers of the Central Ministries and the Provincial Governments who responded to our many requests for help, in spite of their inadequate statistical and staff resources. Finally we express our gratitude to the many private citizens who have freely devoted their time and effort to assisting the Board in considering some of the difficult problems of development which confront the country to-day.

# PART V

# THE DEVELOPMENT PROGRAMME

## SECTION A.—RURAL DEVELOPMENT

## Chapter 13

# VILLAGE AID AND RURAL DEVELOPMENT

## INTRODUCTORY

1. Village Agricultural and Industrial Development—Village AID—is the agency for uplifting and developing the rural community. The economy of the country is based on the village. Over eighty per cent of the population lives in the 100,000 villages whose man-power is the country's principal asset. The tremendous reserves of energy which lie virtually dormant in the villages must be stimulated and released. Millions of rural people can do more to improve their lives than can be done by the Government through a few large-scale schemes. The Government can assist by providing specialists in agriculture, health, construction and community organisation, by making available physical resources not available in the villages, and above all, by supplying the Village AID worker, a readily accessible adviser, who can maintain continuous contact with the villagers and help them to understand their problems, appraise their opportunities and take advantage of the services of the specialists and government funds. The basic concept of the Village AID programme is to provide a means by which technical and financial assistance from the Government can be used to draw forth the resources of skill, energy and money which exist in the villages, to channel them into productive uses, and to create means by which they can be progressively enlarged.

2. Among the most important objectives are :

(*a*) To raise rapidly the output and income of the villagers through better methods of farming, and the expansion of cottage industries.

(*b*) To create a spirit of self-help, initiative and co-operation among the villagers—a spirit that can be the basis for continuing economic, social and political progress.

(*c*) To multiply the community services available in rural areas—such as schools, health centres, pure water supplies, etc.

(*d*) To create conditions for a richer and higher life through social activities including recreation for men and women.

3. Past efforts at rural development have achieved only limited success because of:

(*a*) Inadequate range of the efforts.

(*b*) Too restricted an approach to the problem.

(*c*) An attitude that engendered hostility or indifference on the part of the villagers.

(*d*) Failure to consult the villagers and to maintain continuous contact with them.

(*e*) Meagre resources allocated to the effort.

(*f*) Above all, the failure of the Government to make rural development the main content as well as the objective of their policies and programmes.

These difficulties and mistakes can be avoided by the Village AID programme, but only if it is recognised that to achieve the immense potential benefits of rural development will require a sustained and persistent effort by all concerned. The obstacles are great and well-known—illiteracy, ill-health, poor communications, inadequate technical staff, backward local institutions, particularly those for credit, for village government and for co-operation, listless and apathetic attitudes among the villagers, outmoded traditions, and many others. We believe that these obstacles can be overcome, but to do so will require imagination, drive and energy on a scale hitherto lacking. Indeed the pace and scale of the effort which would be desirable are as large as have ever been achieved in any country. In our judgement, this programme is so important that it should receive the continuous and energetic support and active participation of the public officials, political leaders and social workers from the highest to the lowest.

4. The primary and basic element in the Village AID programme is the concept of self-help. Benefits resulting from unilateral government action without the participation of the beneficiaries are temporary and often deceptive. Far more important than an improvement of living conditions is the creation of a feeling among the people that improvements have resulted from their own efforts and that similar efforts in the future will bring even greater benefits. The Village AID programme aims not only to arouse enthusiastic participation by the villagers but also to sustain it. Their participation in the programme constitutes its very essence because its main purpose is not confined to economic or technical objectives; the programme aims at nothing less than to enable the men and women of rural areas to become progressive self-respecting and confident citizens, with a full consciousness of both their rights and their obligations.

## ORGANISATION, METHOD OF OPERATION AND COORDINATION

### Development Area

5. The basic unit in the Village AID programme is a development area which normally will include about 150 at 200 villages with a population of about 100,000. The staff in the development area will consist of village workers, supervisors, a development officer and subject-matter specialists of the various development departments.

6. There will be one village worker for each group of five to seven villages; about 30 village workers for a development area. Working under the leadership of the Development Officer, village workers will maintain continuous contacts with the villagers and stimulate and guide self-help organisations in their planning and development activities. They will provide solutions to many of the simpler problems and act as liaison between the villages and the technical specialists in the development area.

7. The village workers will be responsible to the development officer who himself will be responsible to the district officer. The development officer will be assisted by two supervisors. He will be the key figure in the rural development work. He must provide initiative, leadership, drive and supervision of the village worker and ensure coordination of all nation-building activities within the limits of Village AID programme. He should be required to make annual reports on the performance of village workers, supervisors and the specialists working under his control. He should have a non-official committee to advise and assist him. This committee should consider proposals for the programme, review the progress made and advise on the future programmes.

8. The specialists who will give advice and assistance to the village workers and to the villagers in solving their problems will represent the following technical fields:—

(*a*) Farm Management (Agriculture).
(*b*) Animal Husbandry.
(*c*) Coöperation and Marketing.
(*d*) Health and sanitation.
(*e*) Works supervision.
(*f*) Social education (Man).

(*g*) Social education (Woman)
(*h*) Other subjects as needed, such as cottage and small industries, fisheries, forestry and range-management.

In the development area the specialists belonging to the various technical departments will work whole-time under operational control of the Development Officer. The technical departments should be enabled to employ other specialists to work in the parts of the tehsil or sub-division not covered by that Village AID programme. The specialists under the Development Officer will continue to belong to their own departments and be responsible to their respective departmental officers for technical guidance and control. For administrative purposes also, such as appointments, transfers and promotions they will remain under the control of their own departments. The specialists will form a key link in the chain between village workers and development officer on the one hand, and the rural development departments on the other. They will work for formulating and implementing the rural development programme. More specifically, in carrying out their functions they will :—

(*a*) assist in making plans for the development of the area in their respective fields;

(*b*) assist in procuring required development materials and services from their respective departments and from other available sources ;

(*c*) teach village workers how to carry out effective demonstrations; and

(*d*) go with the village workers to the villages to assist them personally in their work with the villagers when their special knowledge and skills are required.

**District, and tehsil, taluka or other sub-units (sub-division) of districts**

9. No provision has so far been made for establishing any supervisory authority at the *tehsil* or *taluka* level, but experience may indicate its need, particularly in East Pakistan where the sub-division appears to be the appropriate level above the development officer. The development officer would then be responsible to some *tehsil* or sub-divisional authority designated for this purpose; this authority will report to the district officer. The district officer will be responsible for the Village AID programme, for planning and implementation of rural development at the district level. He is the chief representative of Government in the district and is regarded by the people as the officer of Government with overall responsibility for their welfare. His authority and prestige transcend those of any other representative of the Government. Even ordinarily all departments seek his assistance when they are confronted with serious problems in conducting their operations. He should be clearly and positively responsible for the success of the programme in his district. He should direct the work of the development officers and of the authorities designated for the purpose at the *tehsil* or sub-division level, for supervising their work and for achieving the targets prescribed from period to period. When necessary, he should be assisted by an additional district officer who will relieve him of some of his other responsibilities. Also he should be assisted by an advisory committee of non-official members for the purpose of reviewing progress and considering and advising on future programmes.

10. Funds will be appropriated by the Central and Provincial Governments for intensive rural development work under the Village AID programme. These funds will be used to mobilise and supplement the resources of the villagers in accomplishing development work. District officers, with the approval of their advisory committees should be able to sanction, without prior reference to higher authorities, expenditures on any village project up to budget limits. Administrative and financial powers should be decentralised to the utmost extent. Subject to instructions of a general character, district officers should be given full powers to act. This is the only means by which it would be possible to make

them responsible for achieving the targets of the programme. A system of periodical reporting should be established to watch the progress of expenditure to examine the sanctions issued and assess the results of the programme.

11. The *tehsil*, *taluka* and sub-divisional headquarters usually are fairly well provided with technical staff except in certain areas in West Pakistan. When the programme is extended to cover any administrative area fully, specialists would be needed in a *tehsil* or sub-division in some or all of the following subjects:—

(*a*) Agriculture engineering
(*b*) Plant protection
(*c*) Village industries
(*d*) Forestry
(*e*) Fisheries
(*f*) Horticulture
(*g*) Soil conservation
(*h*) Range management

12. The district officer would have approximately the same technical staff as the *tehsil* (or sub-division) and development area headquarters. These specialists would form the link between the provincial departments and the specialists of the next lower administrative unit, development area or sub-unit of the district.

**Provinces and Centre**

13. The district officer should be responsible to the Provincial Village AID Director, through the Divisional Commissioner where this arrangement is made. The Provincial Village AID Director should be responsible for administration and planning for the Village AID programme at the provincial level, for advising the Provincial Government on matters relating to rural development, for co-ordination within the Village AID administration and with other departments of the Government and for ensuring the punctual fulfilment of provincial programmes and the achievement of targets. The provincial Village AID Director will also be responsible for training programmes of the Village AID Institutes and Academies.

14. The Provincial Village AID Director who should be Deputy Development Commissioner would be responsible to the Provincial Development Commissioner for the implementation of the rural development programme. The Provincial Village AID Administration will be concerned with all the development departments and therefore its administration at the provincial level should be placed under a neutral co-ordinating agency. There would then be greater assurance that the Village AID Administration would treat all parts of the programme with equal concern. Policies and major programmes will be decided upon a neutral level under the direct control and guidance of the Chief Minister or the Minister responsible for Planning and Development. The Development Commissioner should be assisted by a Co-ordinating Committee at the provincial level consisting of Secretaries to the Government and Heads of Departments concerned. Understanding and co-ordination achieved at high levels will travel down the intermediate levels to the specialists and workers at the field level.

15. The Village AID Administration at the Centre is responsible for formulating national policy and providing leadership; for co-ordinating the Village AID programme with those of other Central Ministries; for evaluation of the Village AID programme, for directing the Training Institutes and Academies, and for such other matters of administration and co-ordination as may arise at the central level.

16. We should emphasise that the success of the programme will depend largely upon effective arrangements for co-operation and co-ordination among the different departments concerned and on the association of non-official leadership with it. There is far too great a tendency for the various departments to work independently on parallel lines. A co-ordinated approach is essential if an impression is to be made on the life of the villager. The district officer alone can facilitate this approach and make it effective.

## RATE OF EXPANSION

17. The Central Government and the Provincial Governments have agreed that the Village AID programme should be the principal means for promoting rural development and the channel through which government technical and financial assistance should reach the villages. Because of the overriding importance of the rural development programme and the crucial role of Village AID in stimulating it, we have given highest priority in the Plan to this programme. We believe that in general the programme should be expanded as rapidly as techniques for working with the people can be developed and staff can be trained, and that financial considerations should be of secondary importance.

18. During the Plan period the rate at which Village AID can be expanded will be limited primarily by the number of people who can be trained to carry it out. They fall into three groups : village workers, specialists and administrators. The first training institute for village workers was opened in 1953. By mid-1955 there were nine training institutes functioning—three in East Pakistan and six in West Pakistan. The capacity of the three existing institutes in East Pakistan and of three of those in West Pakistan is now being doubled, and two more double capacity institutes are being established in East Pakistan. This rate of increase is expected to provide enough village workers to open development areas during the Plan period on the scale shown in Table 1.

TABLE 1

*No. of development areas to be opened, by the years during Plan period.*

| Province | Areas opened 1954-55 | 1955-56 | 1956-57 | 1957-58 | 1958-59 | 1959-60 | Total No. by 1960 |
|---|---|---|---|---|---|---|---|
| West Pakistan ... ... | 6 | 11 | 19 | 19 | 19 | 19 | 93 |
| East Pakistan ... ... | 3 | 4 | 14 | 18 | 20 | 20 | 79 |
| Total ... | 9 | 15 | 33 | 37 | 39 | 39 | 172 |

This proposed rate of increase is very rapid : at the end of the Plan period there would be nearly twenty times as many development areas as at the beginning. This will need about 5,000 village workers.

19. Equally important are the specialists to support the village workers. At each level from the development areas to the Central Government, the intensive rural development programme requires for its success the advice, the guidance and the services of specialists in agriculture, in animal husbandry, in health, and so on. Except when unavoidable, the policy should be to provide these specialists from the technical departments concerned. The Village AID Organisation should not build up a separate and independent staff. The

rural development programme is conceived at every level as a joint programme of the Village AID Organisation and technical departments. Opening a development area need not be postponed until all the necessary specialists are available : a start might be made with an agriculture specialist and one or two more, the others being added as soon as possible. During the Plan period, however, several hundred specialists will be needed for the Village AID programme. This will require a large training programme for specialists. At present, however, it is lagging behind that for training village workers; we discuss this problem later in this chapter (paras. 43 to 56).

20. The third group whose work is essential to the success of Village AID are the administrators—the supervisors and development officers, and the responsible officials at *tehsil*, district and higher levels. Academies are to be established soon, one in each wing, to give these officers the special training they require.

21. Finding the men to work the scheme—the village workers, specialists, and supervisors—must be matched by providing the physical requirements like seeds, fertilisers, vaccines, and school books. The villagers will need access to rural credit on reasonable terms, marketing facilities, and many other services.

22. Rural development will need a massive and co-ordinated drive by virtually all government departments : the responsibility for achieving this lies primarily with the Village AID Administration. If one or more supporting activity lags behind the rest of the programme, special efforts should be made to speed it up so as to avoid slowing down the whole programme. The Village AID Administration should not rely on assurance from other departments or attribute failures to them : all reasons for failure must be systematically removed.

23. The pace that has been set for the expansion of Village AID is sufficiently rapid to stretch the administrative capacity of all the organisations involved. And yet in all seriousness it may be asked whether it is rapid enough. By the end of the Plan period it will have been extended to only one-quarter of the rural population. The experience of the existing development areas shows that the villagers are ready for the programme and eager to apply their own energy and resources to make it work—as indeed could be expected since it brings a completely new element of hope into their lives.

24. We recognise the hard practical limits to expansion, set by training facilities, administrative capacity, institutional rigidities and other factors. It would be a great mistake to sacrifice quality for speed of coverage if that meant failure and frustration in the villages : the Village AID programme must succeed. But we look forward to a more rapid rate of coverage in the second five-year plan period, and if any means can be found to increase the rate during the present Plan period, they should be seized. If the other obstacles can be removed, funds should be made available for this purpose.

## PLANNING THE PROGRAMME

25. Planning and development work in the villages should be based on the expressed desires of the people themselves. Different villages will place different priorities on the types of work that they want to do. Some will wish to begin with improved agricultural practices; others with improved water supply, still others with new primary schools. It will therefore be unwise to specify rigid budgets or targets for different kinds of development work in each area ; the funds should be made available, within broad limits and standards, to the development areas in accordance with the plans they themselves work out. In practice, the programme should be flexible between different objects and different years.

26. If the process of development is to be adjusted to the expressed needs of the villagers, very careful planning will be necessary. First, at the village level, development councils or some other means for expressing the villagers' views should decide what they want. At the development area level the village workers and the specialists, together with an advisory committee of local people, would work out targets and priorities to fit the desires of the villagers and the resources available in the area. Similarly at *tehsil* or sub-division, district, provincial and national level there must be careful and continuous attention to determining targets and organising the resources to attain them.

27. Much of this planning will be the responsibility of the technical departments rather than of the Village AID Organisation. For example, multiplication of pure seed of improved varieties in adequate quantities is a high-priority target for the Provincial Departments of Agriculture. One method for accomplishing this would be to have improved seed produced in villages specialising in seed production. This would require carfeul selection of the villages and a well co-ordinated programme for each village, involving villagers, village workers, and specialists on farming, co-operation, marketing as well as, rural credit, warehousing and other services. It would be natural for the Department of Agriculture to take the lead in such a programme, and to regard the Village AID programme as an indispensable means of accomplishing departmental objectives. The proper relationship between the technical departments and the Village AID programme is one of mutual assistance.

28. Other examples of the types of programme planning in which the Departments of Agriculture might take the lead are :

(*a*) To devise specialised programmes for the fishing villages.

(*b*) To organise cooperative societies for operating improved cotton gins in areas of intensive cotton production, and to ensure that all the farmers in these societies use nucleus seed so that all seeds from those gins can be used as improved seeds.

(*c*) To intorduce improved poultry strains into villages near cities, so that better eggs can be sold to urban dwellers, and to rationalise the marketing of eggs.

(*d*) To select certain villages who would sepecialise in the production of better work-stock, to be sold to villagers in other parts of the country.

(*e*) To select certain areas near oil mills which would specialise in the production of oil seeds.

(*f*) To provide small plots for labourers on large farms (sugarcane plantations, tea gardens, fruit gardens and so forth), where they can produce most of their own food in their spare time.

(*g*) To help the nomadic pastoral tribes to improve range management, qualities of range livestock, and methods of shearing, flaying, and generally preparing their livestock products for markets.

(*h*) To organise small scale experiments in grading for the market.

(*i*) To organise cooperative societies to assist in improving the production and marketing of dates.

29. Such examples would occur very readily to any department of Agriculture treating the Village AID programme as a flexible effective device for rural development. And examples of applying the same principle could be multiplied for the departments of Health, Education, Irrigation, Roads, Water Transport (in East Pakistan), Housing, and others. This is one of the greatest merits of Village AID—that it provides a practical means for devising and carrying out development programmes fitted to the specific circumstances of thousands of different villages.

30. One urgent need is for survey teams to collect data on actual and potential intensive development areas. The importance of careful planning before village workers are posted in a given development area must be emphasised. A village worker will be more effective if the villages are chosen after some study of their social and economic characteristics. Villages with the same agricultural production patterns and served by the same "mandi" should if possible be associated together. Development areas should be composed of villages that are socially and economically homogeneous.

31. The units for village workers and the development areas should be determined only after consideration of the cultural nature, the agricultural patterns, the education and health problems, the areas to be served by co-operative societies and schools, and the possibilities for developing village industries. Boundaries of tehsils and districts should if necessary be changed to accord with significant economic or social differences.

32. Preliminary surveys can probably be carried out more effectively and economically by village wokers or trainees with the assistance, guidance and supervision of specialists, such as rural sociologists, agricultural economists, and statisticians. The results of these surveys would facilitate choice of the areas next to be developed, selection of priorities within each area, and at a later stage, assessment of the progress made in the different areas. Preliminary surveys are of great importance for planning new colonisation areas : village workers going into these new areas should be given comprehensive information and instructions.

## PRIORITIES

33. During the first year of the Village AID programme in a new development area the prior needs are usually improvements in agriculture, roads and sanitation; many villagers will however put education and community buildings first, and no two villages will be alike in their needs, desires, and readiness to act. The village worker must not approach a village with fixed notions of what the village needs, although he must be ready to suggest possible alternative measures to improve village welfare. Generally, the villagers should be helped to choose what is worth doing and lies within their scope. The sense of accomplishment that comes from a complete scheme will lead them to tackle more difficult problems.

34. In agriculture the first possibilities lie in increasing crop yields per acre. The village workers will demonstrate how to raise production, and help the farmer to get the supplies he needs. Among the measures that the village worker will stress are:

(*a*) Use of improved seed.
(*b*) Greatly increased use of manures and Fertilisers-farmyard manure, chemical fertilisers and compost.
(*c*) Increased efforts towards plant protection.
(*d*) Better water handling practices on the land.
(*e*) Improved cultural practices.
(*f*) Improved livestock.
(*g*) Increase in the production of fruits and vegetables.
(*h*) Fish production.

35. In the field of health, first priority should be given to potable water supply. If this is done, the present high rate of bowel diseases like cholera, typhoid, and dysentery, can be reduced. Next in importance should be the drainage of stagnant water, disposal of waste, and cooperation in malaria prevention.

36. Once the programme of preventive medicine is well under way in a development area, second priority should be given to improving the nutritional quality of diets. Specialists in health and agriculture, together with female social education workers would join with the village workers to plan and execute such a programme. The villagers would be helped to grow crops that would raise the quality of their diets ; women to preserve and prepare foods so as to maintain nutritional quality.

37. The construction of village roads is frequently a very important means for raising the income of the villagers because it gives them better access to the market. It is also an important step towards breaking down the barriers that isolate village life from the enlivening influences of modern knowledge. Villagers are in most cases capable of building roads to connect them with the district road net, if they are given the necessary technical advice and some of the materials such as those for bridges and culverts, which may not be available on the spot. They can contribute labour, local material, and frequently much or all of the land needed, either by donation or by pooling their own funds for purchase. Help to the villagers in building their own roads can multiply the road mileage obtainable from a limited amount of government funds and technical knowledge, and contribute most effectively towards a good system of farm-to-market roads.

38. In the field of education, the Village AID Administration should assist the educational authorities in the improvement of primary education and the conduct of a mass literacy campaign. In primary education, the aim is to provide within the Plan period at least one sound school for each three villages : Village AID funds will be used to augment the resources of villagers themselves. The schools would be part of the main educational system, though managed so far as possible by the local community : there is no intention to set up an independent set of schools, managed by the Village AID organisation.

39. Much needs to be done to integrate the Village AID education plans with those of the education departments. The provincial educational departments will need to arrange their teacher training plans to take account of the schools to be provided under Village AID. The Village AID and educational officials should agree each year how many new schools can be staffed in the next year—so that village school-building does not outrun staffing possibilities.

40. For the mass literacy campaign, seven adult literacy teachers are to be provided for each development area, to work under the direction of the development officer. In this way, the long pending plans of the Ministry of Education for a nation-wide programme of fundamental education have been combined with the Village AID programme.

## THE SPECIAL PROBLEMS OF RURAL INDUSTRIES

41. The Village AID programme has hitherto included no adequate plans for cottage and small scale rural industries. It is widely recognised that technical and material assistance is badly needed by these industries, and that it should be provided largely through Village AID.

42. There are two general types of village industries needing two distinct types of village workers. The first type includes all those small industries producing for the immediate vicinity ; they serve the ordinary needs of the area, employing village artisans like weavers, blacksmiths, carpenters and potters. There should probably be a specialist in each development area or *tehsil* to serve this type of industry, supported at the district or provincial level by a specialist for each of these main industries.

43. The second type includes the more highly skilled arts and crafts supplying wider markets with sporting goods, fine textiles, metal work, basket and straw work, furniture, ceramics, and so on. These industries, usually clustered in colonies, may face special problems in marketing their products : a specialist in each major craft, dealing with all colonies in a district or Province, could render valuable services.

44. We recommend that the Ministry of Industries should plan and manage, in co-operation with the Central and Provincial Education, Labour, and Village AID authorities, training courses for the village industries workers and for the various kinds of specialists. Because of the urgency of the problems of the small-scale industries some of these trainees should be sent out into the development areas, as soon as they are sufficiently qualified to accumulate experience of the actual conditions, as a prerequisite for any necessary modifications of organisation or method.

## PERSONNEL SELECTION AND TRAINING

45. Because the most important single factor in the success of Village AID will be the competence, initiative, and energy of its staff, their selection and training assumes overriding importance.

### Village workers

46. Some progress has been made in establishing a system for selecting and training village workers. Young men and women are chosen, preferably from rural areas, and given one year's training in a Village AID institute before being posted to a development area. The object of the training is not to create specialists, but to give the workers some basic knowledge of what can be done in the villages to improve agriculture, health, communications, and above all to teach them how to help the villagers to organise themselves to reach their goals. The village workers are taught to work with their hands, because of the fundamental importance of showing the villagers how to do things, not merely telling them. The single capacity training institute admits 75 men and 10 women each year ; the larger ones, twice as many. About 80 per cent of the trainees can be expected to complete the course successfully.

47. We think that, although the basic pattern of training for village workers is well conceived, the quality of the teaching needs improvement. Those who have striven to organise the training institutes have laboured under great difficulties, particulary because the country is seriously short of good and suitable teachers. An expanded programme of teacher training is needed, including regular tours of development areas. Moreover, arrangements should be made for village workers, once posted to development areas, to continue learning more about the problems they encounter and keep up to date with the latest ideas. Refresher courses, workshops, seminars, written material, and many other devices are needed for this purpose. The village worker should be given the idea that his training only began at the institute, and that he must go on learning for years before he will be master of the job.

### Specialists

48. Some experience already exists of selecting and training village workers, but very little experience of selecting and training specialists for Village AID work. We think that the specialists should be selected by the technical departments concerned, although there may be a few cases where the Village AID organisation will have to provide some supplementary training for them. It is a matter of deep concern, however, that adequate plans have not yet been made to train the specialists needed during the next few years.

49. Some indication of the nature of the problem may be given by the following examples. Each development area will need a farm management (agriculture) specialist as soon as the area is opened. This specialist must have a very wide general knowledge of agriculture, so that with the help of other specialists in the organisation he can advise the village workers and the villagers on most of the agricultural problems they will encounter. He will need some training in soil treatment, crop production (including fruits and vegetables), plant protection, agricultural engineering, animal husbandry, agricultural economics, and extension methods. For all this, he will need at least a two-year training at an agricultural college or similar institution. Each development area will also need a works supervisor to provide technical advice and to supervise construction financed partly by Village AID, and perhaps even to advise on construction built entirely with local resources. He should be qualified to deal with very small schemes, such as an individual house, or a village road, to select designs for larger projects, such as schools, warehouses, or water supplies, to advise on the use of local materials, to choose sites, and to supervise the actual construction. If suitable training arrangements are established, works supervisors can probably be trained in twelve to eighteen months. They will need detailed instructions, advice on types of construction and standard designs for use on the sites.

50. These examples are sufficient to demonstrate the variety and complexity of the problems of training the technical specialists needed to work in the Village AID programme. Specialists in animal husbandry, cooperation, marketing, health and sanitation, and in the various other fields will all need careful selection and well-designed training programmes. How are these needs to be met, especially in view of the expanding demand for specialists from the technical departments for work other than village AID ? As an example, there will not even be enough graduates from the Agriculture colleges to meet the direct needs of the Agriculture Departments during the Plan period. Without special measures, there will not be enough specialists for Village AID work.

51. One method for meeting the need would be to train people already at work in rural areas : at present there is usually in each *tehsil* or *thana* at least one agricultural assistant, who could be trained to be a farm management specialist for a Village AID area at the cost, however, of depriving the part of the *tehsil* outside the intensive development area of services formerly available.

52. We believe that a two-year training course with a practical bias would be one effective solution. We recommend that the Village AID organisation should join the Agriculture Departments in planning a curriculum to train both agricultural specialists for the development areas and staff required to carry on the work of the Agriculture Departments in the part of the *tehsil* or subdivision not under intensive development. Funds for this purpose have been included in the Chapter on Agriculture.

53. There may be similar problems and similar answers in other fields, such as health, works, and animal husbandry. We have made some preliminary estimates of the requirements in these fields and the likely availability of trained persons, and recommend that a special survey should be made as a matter of urgency, to assess how many trained workers will be needed for all development activities, including specialists for Village AID and how many will be available during the Plan period. If, as we believe to be the case, there will not be sufficient specialists for the entire development programme, arrangements will have to be made at once to set up special courses of training like the short courses suggested above for agriculture.

54. Such training courses, however, would be mere temporary expedients to prevent shortages of technical personnel from slowing down the development programme. The number and character of trained people required in the years to come should be estimated,

and necessary adjustments made in the educational systems to meet these needs. Training activities should gradually be integrated into the main educational structure of the country.

**Supervisors and Administrators**

55. The Village AID Administration is now making plans to establish two administrative training academies, one in each Wing. Among other purposes, they would train development officers, give two or three months of additional training for Village AID work to specialists, and train government administrators like district and senior officers in rural development and Village AID methods. It has been proposed that courses in rural development be introduced into the curriculum of the C. S. P. Academy; these plans should be put into operation as soon as possible.

56. The development officer will be a key figure in the rural development programme ; he should be not only an effective administrator but also understand rural development and rural people. Every effort should be made to train more development officers than are currently needed for intensive development areas, so that some of them can be freed to study conditions in rural areas for a few months before the village workers come on the scene. As many as possible of the supervisors and administrators should have had experience as village workers or specialists.

57. We recommend that most of the supervisors should be selected from efficient village workers who show administrative ability. Supervisors and specialists should be given an opportunity to qualify as development officers, and most of the *tehsil* development officers should be selected from the best development officers. Additional training should be given to all those being selected for greater responsibilities. Where additional college training is required, as, for example, to enable a village worker to qualify as a specialist, Village AID scholarships should be made available.

58. The question of providing reasonable opportunities for promotion to the staff of the Village AID organisation is most important. All posts at whatever level should be open to workers, specialists, and supervisors at the village or higher level, for example, the posts of development officer should be open to supervisors and specialists of other departments who give evidence of a special aptitude and flair for this type of work. Such prospects are necessary for maintaining the zeal and enthusiasm of the staff. All other means for giving recognition to good work should be used. Missionary zeal among all the workers is a pre-requisite to the success of a social programme like this. The most important single component of this zeal is the morale of these workers.

## FINANCIAL REQUIREMENTS

59. A very large part of the resources invested in the Village AID programme will be furnished by the villagers themselves—in the form of labour, materials and land, as well as money. It is not possible to forecast the size of these contributions with any precision. The Government will furnish trained people, necessary materials not locally available, and some funds. A suitable but simple procedure will be needed for maintaining accounts by the Village Councils of all materials, cash contributions received and the expenditures incurred. Although village workers or any other officials will have no direct concern with the contributions made by the villagers, it will be necessary for them to scrutinise the accounts. The provincial Governments should issue suitable instructions for their upkeep and scrutiny.

60. The financial requirements for each development area will depend on what the villagers of the area want to do. To arrive at some financial estimates, however, the following tentative figures have been suggested by the Village AID Administration. These are purely illustrative ; the purposes and rates of development expenditures will undoubtedly be different from one development area to another.

*Illustration of Annual Expenditure per Village AID Development Area.*

| | Rs. |
|---|---|
| Agriculture ... ... ... ... ... ... ... ... ... | 50,000 |
| Health and sanitation ... ... ... ... ... ... ... ... | 50,000 |
| Animal husbandry ... ... ... ... ... ... ... ... | 30,000 |
| Education ... ... ... ... ... ... ... ... ... | 24,000 |
| Irrigation ... ... ... ... ... ... ... ... ... | 24,000 |
| Village roads and communications ... ... ... ... ... ... | 18,000 |
| Co-operatives ... ... ... ... ... ... ... ... ... | 18,000 |
| Small construction ... ... ... ... ... ... ... ... | 15,000 |
| Bridges and culverts ... ... ... ... ... ... ... ... | 12,000 |
| Cottage industries ... ... ... ... ... ... ... ... | 10,000 |
| Cultural and recreational ... ... ... ... ... ... ... | 6,000 |
| Afforestation, Soil Conservation ... ... ... ... ... ... ... | 5,000 |
| Prizes ... ... ... ... ... ... ... ... ... | 5,000 |
| Housing ... ... ... ... ... ... ... ... ... | 3,000 |
| Home economics ... ... ... ... ... ... ... ... | 3,000 |
| Total ... | 273,000 |

61. Expenditure is expected to be at half the rate in the first and fourth years of intensive development, and at the full rate only in the second and third years ; after four years no development expenditure would be borne by the Government. Because local resources and targets for different areas will vary greatly, flexibility will clearly be necessary in practice. The total cost of this development during the Plan period is estimated to be Rs. 93 million.

62. In addition to these recurring costs, we estimate the average non-recurring expenditures for each development area at Rs. 228,000 of which Rs. 200,000 will be for rural credit. The Village AID funds should be kept separate from rural credit funds, and village workers should not be given responsibility for making or collecting loans, which might prejudice their relations with the villagers. But there must be close co-operation between the village workers and rural credit organisations. The total cost of these non-recurrent outlays during the Plan period is estimated to be Rs. 39·2 million (including credit funds).

**Expenditure on training**

63. The Village AID Organisation is responsible for training village workers, supervisors and administrators. The cost of running the nine existing institutes for training village workers, of doubling the capacity of six of them, and of building and operating two more double-capacity institutes during the Plan period is estimated to be 23·4 million rupees. The cost of building and operating the two new administrative training academies is estimated to be Rs. 5·9 million.

**Administrative expenditures**

64. The Village AID Organisation have estimated administrative costs per development area at an average of Rs. 90,000, which gives a total of Rs. 43 million for all the development areas expected to be opened during the Plan period. In addition, the Central and Provincial Directorates are expected to cost Rs. 8·4 million during the Plan period.

65. The total costs to the Government of Village AID during the Plan period may be summarised as follows :—

TABLE 2

*Estimated Public Expenditure on Village AID*, 1955—1960.

| Purpose | Total cost 1955-60 |
|---|---|
| | (Million rupees) |
| *Development Expenditures—* | |
| Recurrent ... ... ... ... ... ... ... ... ... | 93·0 |
| Non-recurrent (including credit funds) ... ... ... ... ... ... | 39·2 |
| Total ... | 132·2 |
| *Training Expenditures—* | |
| Village worker Institutes ... ... ... ... ... ... ... | 23·4 |
| Administrative Academies ... ... ... ... ... ... ... | 5·9 |
| Total ... | 29·3 |
| *Administrative Expenditures—* | |
| Development Areas ... ... ... ... ... ... ... ... | 43·0 |
| Provincial and Central Directorates ... ... ... ... ... ... | 8·4 |
| Total ... | 51·4 |
| Grand Total ... | 212·9 |

## PERMANENT NATURE OF VILLAGE AID

66. The provision of development funds to the villages can reasonably be regarded as a temporary measure intended to raise incomes enough to enable the development areas themselves to provide most of the funds required, except for credit needs. The needs for extension services to improve agriculture, health, sanitation, village industries, and perhaps other services, will be permanent. New developments in knowledge and techniques will need to be brought continuously and effectively to the attention of the villagers by village workers and specialists, although it may be possible to reduce their numbers in the course

of time. Village AID should be regarded as a permanent and important part of the national administrative organisation for rural areas. This recognition would help in recruiting the best-qualified people available, would raise morale throughout the organisation and would foster good relations between Village AID and other departments.

## CO-OPERATIVES

67. Co-operative societies have a very important role in the economic and social development of rural areas. But they are not functioning very effectively at present, and have declined as rural credit agencies in recent years, switching their energies to urban business. The Village AID Administration should support the existing co-operative societies. This necessitates reviewing the present position of co-operatives in the Village AID areas ; those functioning efficiently should be encouraged and used fully, and plans should be drawn up for reorganising and reviving others. In areas where no co-operatives exist, new ones should be started. One of the tests of the success of Village AID will be whether the villagers are eventually able to manage their affairs co-operatively.

## LOCAL INSTITUTIONS

68. The creation and strengthening of local representative bodies, chosen by the people of the area and exercising independent power of decision and action, are important for rural development. There are great obstacles, and improvement can only come gradually and as experience is gained. The Village AID programme will help, because its basic concept of self-help and local decisions gives the local representative bodies a prominent role. Particularly in the villages themselves, it will help to create leadership and organisations of considerable strength.

69. The business of these organisations will be rural development work, but they are bound to impinge on local governmental activities, and can sometimes be considered an embryo form of local self-government. A Village Development Council arranging local contributions for a new school or water supply will be acting in a sense as a local taxing body ; when deciding what work will benefit the village most, it will be acting as a local legislative body ; when devising schemes which need the organisation of local people into effective working groups it will be acting as a local administrative body. The contribution of Village AID to the development of local self-government is a notable feature of the programme ; responsible officials must consider the relationship of any special local bodies established for promoting the Village AID programme to existing forms of local government, like *Panchayats*, Union Boards and District Boards, and harness the inherent impetus towards local self-government.

## EVALUATION

70. The complexity and novelty of problems facing the rural development programme render it experimental at least for some years. This necessitates constant appraisal and evaluation with special attention to its strengths and weaknesses as they appear in practice. For this, a strong programme appraisal staff should be established, initially in the Central Government machinery, to study the methods used in different areas, the reasons for their success or failure, and means for improving and accelerating the programme. The Central Government Village AID Administration propose to start with a four-man staff to perform this work. It is desirable to start this work on a modest scale in order to develop useful techniques and a properly trained staff, but it will be necessary to expand it as quickly as possible. A great deal of field work will be needed to achieve substantial results.

## TERMINOLOGY

71. The terminology in this field is still in flux, and remains somewhat unsatisfactory. The ultimate objective of the rural development programme is nothing less than an orderly revolution destined to affect every phase of the villagers' lives. The bulk of the resources to accomplish this—human efforts, materials and finance will come from the village people themselves, supported by government help from many different departments. The term "Agricultural and Industrial Development" is inadequate for a programme of assisted self-help that covers not only agriculture and rural industries but also health, education and many other services. Nor does it convey the essential social and moral content of the scheme. The name "Village AID" for a programme designed primarily to release the energies of the villagers in self-help may sound patronising as well as inappropriate. The term "Rural Development" expresses the nature and purpose of the scheme more adequately; we suggest the name of the Village AID Administration might be changed to the "National Rural Development Service", as opportune. There are other problems of terminology; we think the terms used to describe the various staff and organisations will need to be clarified in the course of time.

## RURAL DEVELOPMENT OUTSIDE VILLAGE AID AREAS

72. The Village AID programme will cover only a part of the country during the Plan period. As experience is gained, more staff are trained and more supplies of materials become available, the pace of development will accelerate, and a substantial part of the country will be covered within the next ten years.

73. It is necessary for a number of reasons to initiate a modest programme of development in areas which will invariably remain outside the Village AID programme for some years. Rural areas have suffered from relative neglect in the past and any plan of development will lose some of its impact unless the whole village population has some contact with it. It is necessary for the success of the Plan that the entire rural population should be brought into association with it, even if only in a small way. They should begin to feel that a development plan is under way in the country and that they and their villages have not been overlooked. In the last analysis the real sanction behind the programme is the will of the people, stimulated when they see it in action and feel some of its benefits directly.

74. For this purpose, Village AID could well be supplemented by less intensive schemes which could be multiplied rapidly so as to cover the entire country in the shortest possible time, the more elaborate organisation being spread as resources permit. Some expements with less intensive methods in selected areas are being considered, and their outcome might reveal the possibility of accelerating these schemes without appreciably checking the progress of the full Village AID programme.

75. A small programme on these lines should be undertaken in the areas where Village AID is not likely to be developed for some time. It will help to bring people and Government closer together in a partnership, help officials, to appreciate their responsibilities for the welfare of the people, give the people a feeling of confidence in the officials, and directly produce some useful local improvements.

76. We have included a sum of Rs. 30 million for this supplementary programme in the Plan. All district officers and, in East Pakistan, sub-divisional officers also, should be made responsible for sponsoring such development schemes on a modest scale. Every

year immediately after the annual budgets are passed, funds should be placed at the disposal of the district officers for this purpose. In East Pakistan, Circle Officer should start and manage the programme in the field. In West Pakistan, the district officer should select officers from development departments, such as Co-operative, Agriculture or *Panchayats*, for handling this programme under his general guidance and control. These officers should be given a short course of training on the objects and methods of the programme. A manual of instructions should be drawn up by the Provincial Governments for the guidance of all officers concerned. The field officers should work in close association with the Union Boards in East Pakistan and the various local self-government bodies in West Pakistan. In the absence of such bodies it would be necessary to use *ad hoc* bodies composed of men with qualities of social leadership and service. After discussions with the villagers, the field officers should report to their district officers on feasible schemes.

77. Government funds should then be made available to assist approved schemes. The contribution of the Government should not usually exceed 25 per cent. of the total cost, the balance coming from the villagers mainly in the forms of labour and local materials. Schemes may cover such things as reclamation of lands, cultivation of fisheries, improvement of irrigation, wells for drinking water, anti-malarial measures, but in each case the object must be to do what villagers themselves want. The methods used would be like those of Village AID, except that the scale of operations would be modest, and would be carried out with the help of existing staff of the various development departments. The responsibility for control and co-ordination would rest with the District Officer as in the Village AID programme.

78. Our discussions with the officers of the Provincial Governments show that although the proposal is accepted in principle, some doubts exist about how to put it into practice. We think that these doubts can be resolved with adequate preparatory work in consultation with the district officers, leading to the issue of a manual of instructions for the guidance of officers concerned. The idea is not altogether new, for in actual fact it has been in practice for some time in India. New techniques and procedures based on experience will be evolved for the country.

79. We consider that the tribal areas have a claim for special treatment in this supplementary rural development programme. The Political Agents dealing with the tribes should begin to realise their responsibilities of sponsoring economic and social development, and seize opportunities where a little assistance and encouragement from the Government would enable the tribes to undertake schemes for bettering their lives. We suggest that out of the total sum of Rs. 30 million a sum of Rs. 5 million for the Plan period should be set apart for the Tribal Areas, with annual allotments to the Political Agents, who should be given wide discretion to spend them. The Agents should make periodical reports showing the sanctions given, the purposes sought and the total estimated expenditure. To require prior sanctions for individual schemes would lead to delays, and defeat the purpose of the programme. The life of the Political Agents is difficult and their duties very exacting, requiring constant care and watchfulness. Their traditional approach towards their duties has been largely that of keeping the tribal people in good humour. Now they would have wider responsibilities. We consider that the Political Agents should be assisted by trained development officers in extending their work to economic and social welfare.

80. If the amounts we have allotted are usefully spent and yield substantial results, the benefits of these programmes would warrant increased grants for similar purposes during the Plan period.

## FINANCIAL REQUIREMENTS

81. Table 3 below summarises the total estimated public expenditure for both the Village AID and the supplementary programme, and Table 4 indicates possible phasing of this expenditure over the Plan period. These figures exclude costs borne directly by the villagers and in that sense they undertake the size of the programmes.

### TABLE 3

*Summary of expected public expenditure for Rural Development, 1955—60.*

(Million rupees)

| | |
|---|---|
| I. *Village AID—* | |
| Development funds ... ... ... ... ... ... ... ... | 132·2 |
| Administration ... ... ... ... ... ... ... ... | 51·4 |
| Training ... ... ... ... ... ... ... ... ... | 29·3 |
| V-AID—Total ... | 212·9 |
| II. *Rural Development Outside V-AID—* | |
| General programme ... ... ... ... ... ... ... ... | 25·0 |
| Tribal Areas ... ... ... ... ... ... ... ... ... | 5·0 |
| Total ... | 30·0 |
| Grand Total ... | 242·9 |

### TABLE 4

*Public expenditure on rural development programme by years.*

(Million rupees)

| | 1955-56 | 1956-57 | 1957-58 | 1958-59 | 1959-60 | Total |
|---|---|---|---|---|---|---|
| Village AID ... ... | 21 | 31 | 44 | 55 | 62 | 213 |
| Development outside V-AID areas. | ... | 4 | 7 | 9 | 10 | 30 |
| Total ... | 21 | 35 | 51 | 64 | 72 | 243 |

## Chapter 14.

# AGRICULTURE

## INTRODUCTORY

### General

Agriculture, along with its branches of animal husbandry, forestry, fisheries and horticulture is the largest segment of the economy of Pakistan. About 60 per cent of the total national income is derived from agriculture. Nearly 75 per cent of the civilian labour force is engaged in agriculture and 90 per cent of the people living in villages are dependent directly or indirectly on agriculture. Nearly 95 per cent of the total foreign exchange earnings is contributed by agriculture. It constitutes the base of our national economy and therefore the problems of its stability, its strength and the factors of its growth must receive special attention in all plans of development. Agricultural productivity, in terms of labour engaged in it, is at present exceedingly low which is reflected in the low levels of income of the farmers and agricultural labour and by the inadequate diet of the people generally.

2. The importance of agriculture is exceptionally great in the present stage of the economy. The urban sector gives unmistakable signs of growth and expansion and the urban labour force is increasing much faster than the average. This rate of increase will continue in future years as a part of the expansion of industrial and tertiary sectors. Agricultural production has to expand in order to produce food for rural people who will eat more as their incomes increase; for the growing urban population, and for increases in the population which according to our estimates is growing at the rate of 1·4 per cent per annum. It has also to yield larger surpluses of cash crops for export.

3. To prevent the danger of imbalance between agriculture and industry measures have to be taken and put into force firmly to increase agricultural production. Any lack in steadiness of supplies of food to urban population will create difficulties in fulfilling the programme for industrial development and for the expansion of education, health and national housing services. We can reasonably count, as we have done in the past, on help in emergencies from the agricultural surpluses of friendly countries but we must have a secure food supply of our own. This is essential for the uninterrupted progress of the economy.

4. We will mention briefly some of the main causes which hamper agricultural development. The most important cause in our view is the uncertainty which surrounds the problem of land tenures, as a result of which neither the land-owners nor the cultivators feel that deep attachment to the land which derives from confidence in guaranteed possession and in the exclusive and continued right to the fruits of investment and labour. The landlord is uncertain about his future and cannot, therefore, do more than work to preserve his position. The tenant can have neither the means nor the incentive to do more than the minimum required to maintain himself and his family at the low standards to which he is traditionally accustomed. Thus the outstanding feature of the land situation is the lack of incentives for development beyond what is needed for immediate future. Incentives are essential for stimulating development in a democratic society. We have dealt with this problem under Land Reforms and consider it to be one of the chief obstacles in the way of agricultural development in particular and of economic development in general. We trust, now that the Constitution has been passed and will be fully in force within a year this uncertainty will soon be removed.

5. Agriculture contributes 60 per cent of the national income. A disproportionately large part of this income accrues to the relatively small number of landlords. Some of the investigations made recently in Peshawar areas show that, after making allowance for land revenue and business expenses, the landlords receive the equivalent of as much

as 25 per cent of the gross production. This is a high proportion of the national resources and it would be difficult to claim that they are employed productively to any large extent except that orchards are being planted and fruit cultivation is being increased rapidly. Agriculture in other respects does not seem to be receiving any sizeable benefit from the resources accruing to the landlords.

6. Our immediate purpose in the Plan period is to accelerate the process of agricultural development. The form of organisation which is likely to serve this object is a question which needs to be answered. We believe that in the conditions of our country peasant proprietorship rather than widespread tenancy or large scale individual holdings or co-operative farming, offers the maximum possibilities of success for agricultural development. In the Chapter on Land Reforms we have discussed the problems of tenancy and those created by large scale individual owner holdings of land. Co-operative farming is unable to satisfy the individualistic tendencies of our men and women to the extent that peasant proprietorship can. While we appreciate the need for social and economic improvement to be achieved by co-operative organisation we feel that this approach will require time and a process of trial and experiment, especially in cases where basic changes socio-economic conditions and individual attitudes are involved as with co-operative farming. At present opportunities for exploiting the weaker partners in joint enterprises are apt to be exploited freely and disinclination to participate in such enterprises is re-inforced by the social prestige attached to individual ownership.

7. 'Co-operation' as such has not so far succeeded to the extent that it could serve as an instrument for rapid development. This is the considered judgement of all committees and observers who have investigated this problem. We have dwelt on this question more fully in the chapter on 'Rural Credit'. The lack of success is due to "defects and deficiencies common to village life throughout the sub-continent—the wide spread illiteracy, the general ignorance of business habit and method, the tendency to faction, the lack of leadership and good management, the selfishness and dishonesty of many committees, and the recklessness and improvidence of the peasant". This is even more true of co-operative farming in which land is placed under joint cultivation. Attempts made to establish and operate such societies, in general, have not yielded successful results. However, co-operative societies intended for providing common services such as marketing of produce, supply of seeds, fertilisers, credit and the like which are not farming but multipurpose societies should be encouraged and promoted to the maximum extent, particularly in village AID areas.

8. Agriculture has also suffered because it is only after partition that the awareness has begun slowly to grow that it should not be treated as a junior member in the family of Government departments. Agriculture is in need of vision and enterprising leadership. This can be provided by the Provincial Governments with the full moral, financial and technical support of the Federal Government. The urgent needs of the nation must rank higher than service rights and individual claims. Nothing but the most imaginative and vigorous leadership available to the Government would be sufficiently good for agriculture during the next few years. Those responsible for agriculture must rank high in the counsels of the Government. The country will reap rich rewards by putting its most outstanding men in agriculture. We are confident that if agriculture is put firmly on the road to active progress and an element of dynamism is injected into it, the economy will acquire the momentum needed for rapid development on the entire front.

9. There is a dearth of trained men in agriculture and the Provincial Governments are unable to find men to fill all the sanctioned posts on their establishments. Some of the colleges are not able to attract all the pupils they are intended to accommodate. The relatively low salaries; the minor status of the departments; the lack of satisfaction which comes from a sense of achievement, and brightening prospects in other fields as a result of expansion and development are some of the important factors which detract from the

attraction of work in agricultural departments. Graduates of agriculture have merits which distinguish them from other graduates and can make better careers in other fields.

10. In formulating our Plan we have made an attempt to meet these problems. We have assigned first priority to agriculture in our Plan. We found the programmes proposed to us by the Provinces insufficient and raised them by including new schemes or higher targets which in our opinion are urgently needed. We feel that the programme should be increased further during the Plan period either by exploiting new resources or by curtailing investments in other sectors by necessary adjustments. This can be done by preparing new schemes which are sound technically and economically. The inadequacy of technical staff should be remedied as far as possible by appropriate emergency measures.

11. The total area of Pakistan is a little over 233 million acres. About 61 million acres aer under cultivation; 6 million are under forests; 27 million are classed as ' culturable waste'; 57 million as unculturable waste land and 82 million acres have not been classified. These categories are shown in Table I below:

### TABLE I

*Land Utilisation in Pakistan*

| | Million Acres | Percentage |
|---|---|---|
| Net area sown ... ... ... ... ... ... ... | 49·2 | 21 |
| Current fallows ... ... ... ... ... ... ... | 11·5 | 5 |
| Total area under cultivation ... ... ... ... ... ... | (60·7) | (26) |
| Forests ... ... ... ... ... ... ... | 6·1 | 3 |
| Culturable waste ... ... ... ... ... ... ... | 27·0 | 12 |
| Not available for cultivation ... ... ... ... ... ... | 57·4 | 24 |
| Area not classified ... ... ... ... ... ... ... | 82·3 | 35 |
| Total ... | 233·5 | 100 |

## Crop production

12. It has been a matter of major government policy since partition to harness and control the available water resources, especially surface water, with the object of developing new land for the cultivation of crops, improving existing irrigation, regulating floods, and providing better drainage. As a result of these schemes it is estimated that by March, 1955, about 700,000 acres of new land had been brought under cultivation, some 118,000 acres of previously cultivated land provided with improved irrigation facilities, 185,000 acres of saline and water-logged land reclaimed and about 423,000 acres protected from floods and improved by drainage.

Statistics of all the crops grown in the country for each year are not available, but the statistics for major crops shown in Table 2 indicate that there has been an increase in the acreages sown to the principal crops since 1948. Although there have been yearly fluctuations in the acreages sown to these crops, primarily as a result of weather conditions and

Government regulation of jute production, there has been a total increase from 47·55 million acres in 1948-49 to 50·27 acres in 1954-55, an increase of 2·72 million acres; this increase has been partly as a result of irrigation and grow more food schemes and partly as a result of favourable weather in 1953 & 1954. Most of this increase in acreage was used to produce food grains, especially rice.

### TABLE 2

*Area under principal crops in Pakistan* 1948—55

| | 1948-49 | 1949-50 | 1950-51 | 1951-52 | 1952-53 | 1953-54 | 1954-55 |
|---|---|---|---|---|---|---|---|
| | | | (Million acres) | | | | |
| Rice ... ... ... | 21·50 | 21·83 | 22·40 | 22·48 | 23·02 | 24·53 | 23·70 |
| Wheat ... ... ... | 10·69 | 10·43 | 10·89 | 10·24 | 9·53 | 10·65 | 10·66 |
| Other food grains ... ... | 5·13 | 5·32 | 5·12 | 4·61 | 5·08 | 5·77 | 4·96 |
| Total food grains ... | 37·32 | 37·58 | 38·41 | 37·33 | 37·63 | 40·95 | 39·32 |
| Gram ... ... ... | 3·00 | 2·60 | 2·96 | 2·31 | 2·24 | 2·77 | 3·10 |
| Sugarcane ... ... ... | 0·71 | 0·77 | 0·70 | 0·70 | 0·87 | 0·96 | 1·02 |
| Oilseeds ... ... ... | 1·76 | 1·65 | 1·90 | 2·14 | 1·83 | 1·92 | 2·09 |
| Jute ... ... ... | 1·88 | 1·56 | 1·25 | 1·78 | 1·91 | 0·97 | 1·24 |
| Cotton ... ... ... | 2·65 | 2·80 | 3·07 | 3·38 | 3·48 | 2·93 | 3·19 |
| Total fibre crops ... | 4·53 | 4·36 | 4·32 | 5·16 | 5·39 | 3·90 | 4·43 |
| Tea ... ... ... | 0·07 | 0·07 | 0·08 | 0·08 | 0·07 | 0·08 | 0·07 |
| Tobacco ... ... ... | 0·16 | 0·17 | 0·18 | 0·18 | 0·17 | 0·19 | 0·24 |
| Total ... | 47·55 | 47·20 | 48·55 | 47·90 | 48·20 | 50·77 | 50·27 |

*Source*:—Ministry of Agriculture.

13. The production of the principal crops since 1948-49 is given in Table 3 and yield per acre in Table 4. The period is too short to permit satisfactory deductions. It, however, appears that inspite of an increase in acreages, the production did not show corresponding increases. There was, on the contrary, a slight fall; acre-yields of food grains which form more than 80 per cent of the cropped area have tended to decline slowly. The possibility of constant or even declining food production presents serious problems especially when the population is increasing at a rapid rate.

### TABLE 3

*Production of principal crops in Pakistan* 1948—55

| | 1948-49 | 1949-50 | 1950-51 | 1951-52 | 1952-53 | 1953-54 | 1954-55 |
|---|---|---|---|---|---|---|---|
| | | | | (Million tons) | | | |
| Rice ... ... ... | 8·41 | 8·17 | 8·20 | 7·76 | 8·15 | 9·15 | 8·41 |
| Wheat ... ... ... | 3·99 | 3·89 | 3·95 | 2·97 | 2·39 | 3·68 | 3·17 |
| Other food grains ... ... | 1·20 | 1·21 | 1·16 | 0·96 | 0·94 | 1·33 | 1·15 |
| Total food grains ... | 13·60 | 13·27 | 13·31 | 11·69 | 11·48 | 14·16 | 12·73 |
| Gram ... ... ... | 0·80 | 0·65 | 0·79 | 0·48 | 0·37 | 0·65 | 0·63 |
| Sugarcane (*gur*) ... ... | 1·03 | 1·07 | 0·87 | 0·87 | 1·09 | 1·26 | 1·23 |
| Oil seeds ... ... ... | 0·31 | 0·27 | 0·33 | 0·35 | 0·27 | 0·32 | 0·37 |
| | | | | (Million bales) | | | |
| Jute ... ... ... | 5·48 | 3·33 | 4·45 | 6·33 | 6·82 | 3·61 | 4·66 |
| Cotton (lint) ... ... | 0·99 | 1·31 | 1·52 | 1·65 | 1·90 | 1·44 | 1·65 |
| Total fibre crops ... | 6·47 | 4·64 | 5·97 | 7·98 | 8·72 | 5·05 | 6·31 |
| | | | | (Million lbs.) | | | |
| Tea ... ... ... | 33·60 | 38·88 | 37·86 | 53·00 | 52·00 | 52·00 | 54·00 |
| Tobacco ... ... ... | 141·92 | 148·97 | 162·40 | 178·95 | 167·10 | 201·99 | 262·04 |

*Source*:—Ministry of Agriculture.

## TABLE 4

*Yield per acre of principal crops in Pakistan, 1948—55*

| | 1948-49 | 1949-50 | 1950-51 | 1951-52 | 1952-53 | 1953-54 | 1954-55 |
|---|---|---|---|---|---|---|---|
| | | | (*Maunds* per acre) | | | | |
| Rice ... ... ... | 10·6 | 10·2 | 10·0 | 9·4 | 9·6 | 10·2 | 9·7 |
| Wheat ... ... ... | 10·2 | 10·1 | 9·9 | 7·9 | 6·8 | 9·4 | 8·1 |
| Barley ... ... ... | 7·9 | 7·6 | 7·7 | 6·1 | 5·2 | 6·9 | 6·8 |
| Maize ... ... ... | 10·8 | 11·0 | 11·0 | 10·5 | 9·7 | 11·5 | 11·2 |
| Bajra ... ... ... | 4·6 | 4·3 | 4·4 | 3·6 | 3·3 | 4·8 | 4·3 |
| Jowar ... ... ... | 5·6 | 5·4 | 5·3 | 5·1 | 4·5 | 5·1 | 5·3 |
| Average food grains ... (weighted average) | 9·9 | 9·6 | 9·4 | 8·5 | 8·3 | 9·4 | 8·8 |
| Gram ... ... ... | 7·3 | 6·8 | 7·3 | 5·6 | 4·5 | 6·3 | 5·5 |
| Sugarcane (*gur*) ... ... | 39·5 | 37·6 | 34·1 | 33·5 | 34·0 | 35·7 | 32·8 |
| Rape and mustard ... ... | 4·8 | 4·5 | 4·8 | 4·4 | 4·0 | 4·5 | 4·9 |
| Linseed ... ... ... | 4·4 | 4·4 | 4·5 | 5·1 | 4·6 | 4·4 | 5·0 |
| Sesamum ... ... ... | 4·6 | 4·4 | 4·5 | 5·1 | 4·6 | 4·5 | 4·6 |
| Seed Cotton ... ... | 5·3 | 6·7 | 7·1 | 7·0 | 7·8 | 7·0 | 7·4 |
| Jute ... ... ... | 14·2 | 10·4 | 17·3 | 17·3 | 17·4 | 18·2 | 18·2 |
| Tea ... ... ... | 5·6 | 6·4 | 6·1 | 7·9 | 7·9 | 8·4 | 8·9 |
| Tobacco ... ... ... | 10·5 | 10·7 | 11·0 | 11·8 | 11·6 | 12·7 | 13·4 |

14. As compared with food grains, the commercial crops behaved somewhat differently. The acre-yields of jute, cotton, tobacco, and tea have shown improvement since partition. It is not possible to explain fully the behaviour of cash crop production, but it looks as though farmers have been giving more attention to these crops to obtain higher cash returns. The yields of other crops have not shown any significant changes; what little evidence there is indicates a slight downward tendency.

15. Two main reasons can be ascribed for poor agricultural production. First, the cultivated area per head of population is small—1·1 acres in West Pakistan and 0·51 acre in East Pakistan. Secondly, the yields per acre of crops are very low because of low fertility of the soil, irregularity and inadequacy of rainfall, prevalence of salinity, water logging and soil erosion, lack of adequate irrigation drainage and flood control systems, high incidence of pests and diseases, primitive production methods, lack of credit, and adverse systems of tenure.

### Animal husbandry

16. The position of livestock and livestock products is not known with certainty because of the lack of recent statistics. The figures published by the Ministry of Agriculture suggest that the livestock population has not materially changed since 1945. This is a very unsatisfactory position, because the demand for meat has increased considerably as a result of an increase in the population as well as in the proportion who eat meat. Merely to maintain the present consumption of calories coming from livestock and livestock products, the country must increase the output of livestock products by at least 1·4 per cent each year. This poses a serious problem because the increase of livestock numbers is inherently a slow Process and possibilities of increasing livestock weights are limited during the Plan period. The increase of poultry in a short time presents a less intractable problem.

### Fisheries

17. The production of fish increased from 236 thousand tons in 1951 to 256 thousand tons in 1954, an increase of about 8 per cent. Much greater increases than could be expected from livestock are possible in fish production in a short period, especially because the inshore and impounded waters have great potentialities for the development of fish. Higher production of fish would improve the diet of the people particularly in protein content.

### Forestry

18. The country does not possess adequate resources to meet domestic demand for forestry products. At present timber worth about twenty million rupees is imported each year. Shortages of firewood force the rural population to use dung, and the urban population has to pay a high price for the wood they are burning. The demand for timber is rising with the increase in population, the development of industries, increasing urbanization and growing national income.

19. The problems of agriculture and its allied fields facing the country to-day are serious. The population is increasing at about 1·4 per cent per annum, and it does not seem possible to arrest this increase in the near future. Nutritional standards are below the accepted minimum requirements for health, and there are large yearly fluctuations in food production. Large increases in cultivated area and in acre-yields are not possible quickly. Livestock and fuel supplies in particular are short, but no large expansion of livestock production or of wood for fuel is possible in the short run. The size of holdings is generally uneconomic, credit facilities are inadequate and tenure systems offer barriers to development.

20. The food position of the country is delicately balanced, and slight variations in the food grain production caused by vagaries of weather greatly upset the supply position. In a good year, with adequate and well-distributed rainfall, the country will normally have a small surplus. If this surplus is not properly husbanded and is thrown on the market it will greatly depress the prices. In a year when rains fail or floods and pestilence occur the harvest is poor. The supplies then fall short of the demand and prices tend to rise steeply.

## PRODUCTION TARGETS

21. The country thus faces the need to increase production substantially in all the principal branches of agriculture. Expansion would be necessary to assure even the present level of supplies to the existing population. To provide higher standards of consumption to a larger population, and to make a bigger contribution to foreign exchange earnings through larger commodity exports will require still greater production. But what can be done during the Plan period is limited by the availability of trained personnel,

the extent of irrigation facilities and of suitable land transport facilities, efficiency of extension services, supplies of needed materials and credit, adjustment of tenures, etc. The production targets we recommend for the Plan period are shown in Table 5 below:—

### TABLE 5

*Targets for production of crops, fish, and timber by 1959-60*

| Commodity | Unit | Production in base period (a) | Production target in 1959-60 | Percentage increase |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
| *Food grains* : | | | | |
| Rice | Thousand tons. | 8,320 | 9,250 | 11 |
| Wheat | „ | 3,435 | 4,020 | 17 |
| Maize | „ | 395 | 495 | 25 |
| Jowar | „ | 240 | 270 | 13 |
| Bajra | „ | 355 | 405 | 14 |
| Barley | „ | 130 | 145 | 13 |
| Total food grains | | 12,875 | 14,580 | 13 |
| *Fibre crops* : | | | | |
| Jute | Thousand bales. | 5,592 | 6,070 | 9 |
| Cotton | „ | 1,630 | 2,257 | 38 |
| *Other crops* : | | | | |
| Pulses | Thousand tons. | 910 | 1,000 | 10 |
| Oilseeds (including cotton seed) | „ | 890 | 1,145 | 29 |
| Fruits | „ | 2,635 | 2,990 | 14 |
| Vegetables | „ | 1,565 | 1,930 | 23 |
| Sugarcane (*gur* equivalent) | „ | 1,060 | 1,460 | 38 |
| Tea | Million lbs. | 52·8 | 60·7 | 15 |
| Tobacco | „ | 260 | 300 | 16 |
| *Fish* | Thousand tons. | 256 | 334 | 30 |
| *Timber* : | | | | |
| Sawn and square | Thousand tons. | 5 | 43 | 750 |
| Round | „ | 550 | 585 | 6 |
| Total timber products | „ | 555 | 628 | 13 |
| Fire wood | „ | 974 | 975 | Negligible |

(*a*).—The base periods have been adopted according to individual circumstances and are as follows:—

*Food grains, gram, sugarcane, oilseeds, and tobacco* : average 1948—55.

*Pulses* (other than gram), *fruits and vegetables*: Average of data available with the Ministry of Agriculture, generally between the years 1948-49 and 1953-54

*Cotton* : Estimate for 1954-55.

*Jute* : Estimate for 1955-56.

*Tea* : Average 1951—55.

*Fish* : Estimate for 1954.

*Timber and firewood* : Estimate for East Pakistan, 1953-54, West Pakistan, 1951-52.

*Tobacco* : Estimate for 1954-55.

## Crop production

22. The targets for crop production are based on acre-yields expected under average weather conditions. Although new areas will be brought into production, more than half of the increases in production must be brought about by increasing the acre-yields of crops. The suggested increases in production, in general, range from 10 per cent in pulses to about 38 per cent in cotton. We attach special importance to increasing food grain production in order to provide more food per head for a larger population. Since the targets proposed by us call for increases in production that exceed population growth, production *per capita* should increase in nearly every crop. The production of food grains should increase during the Plan period by about 1·7 million tons, or 13 per cent. The increased caloric supply from these additions to the principal food crops amounts to 6 per cent *per capita*, as shown in Table 6.

TABLE 6

*Food available from target production of principal crops by 1960*

| Food groups | Available for food | | Calories available *per capita* per day | | |
|---|---|---|---|---|---|
| | Present | 1959-60 | Present | 1959-60 | Expected increase |
| | *Thousand tons.* | | *Number* | | *Per cent.* |
| Food grains ... ... ... ... | 11,586 | 13,093 | 1,391 | 1,447 | 4 |
| Pulses ... ... ... ... | 683 | 750 | 82 | 83 | 1 |
| Sugar cane (*gur* equivalent) ... ... | 927 | 1,352 | 123 | 163 | 33 |
| Oil seeds (oil equivalent) ... ... | 123 | 145 | 33 | 39 | 18 |
| Fruit and vegetables ... ... ... | 3,759 | 4,405 | 70 | 74 | 6 |
| Total principal crops only ... | ... | ... | 1,699 | 1,806 | 6 |

23. The jute target of 6.07 million bales has been proposed to keep the supplies in line with the total present demand from domestic and foreign markets. For cotton the target is to increase the production during the Plan period by about 630 thousand bales, an increase of about 40 per cent over the existing average production; this would raise cotton production to 2·25 million bales by 1959-60. Substantial increases in cotton production are necessary to keep up the level of exports, after meeting the growing domestic demand for cotton in order to maintain foreign exchange earnings.

## Animal husbandry

24. We have included in the Plan almost all the feasible schemes received from the various sponsoring authorities, with such modifications as were found to be necessary. These schemes aim at strengthening the existing Government breeding farms and the establishment of new ones—sixteen for cattle, five for sheep, and eight for poultry and include the establishment of farms near Dacca, Lahore, and Karachi for keeping dairy cattle during their dry period. Milk supply schemes are proposed for Dacca and Lahore, with Karachi as another possibility. Slaughter houses will be established at Dacca, Chittagong, Lahore and Karachi. To check and reduce diseases the Plan calls for establishing over 50 new veterinary hospitals and dispensaries, as well as adding over twenty mobile dispensaries. Special measures are recommended to reduce losses from rinderpest, anthrax and liver fluke.

### Fisheries

25. The programme for the development of fisheries is expected to produce an increase of about 30 per cent in the annual output of fish. The limit is set by available technical personnel and equipment, and by the time taken to expand the organisation. It is however especially important that the targets for fish output be reached because of the acute shortages of meat and proteins in our food supply. Efforts should be made to exceed them if possible.

### Forestry

26. Harvested timber is to be increased from government forests by 73 thousand tons, *i.e.*, about 13 per cent by 1959-60. In addition experimental and developmental work in the production of rubber and other commercial products is to be expanded. The area under firewood is to be increased, but because of the time required for growth, harvested production will not increase until after 1960.

27. The targets we propose for agriculture are ambitious, but not unrealistic in relation to the resources which can be made available to achieve them—if a very great effort is made. Increased research education and extension work are essential for their attainment; the following sections review the needs and indicate the programmes we recommend for achieving the ends in view.

## CROP PRODUCTION AND MARKETING

### Crop improvement

28. More than half of the increase in crop production during the Plan period must be brought about by increases in the acre-yields. The crop improvement programme, therefore, is of major importance; it includes expansion and improvement in plant breeding, increases in the production and distribution of improved seeds, distribution and use of larger quantities of fertilisers and manures, expansion of plant protection measures, more efficient use of available water, and more extension work and research in all phases of crop production.

### Plant breeding

29. Plant breeding includes work from basic plant genetics research to the application of the basic knowledge in the field-testing and selection of improved plants for seed multiplication. While basic work must be continued, the emphasis in expansion should be on the application of available basic knowledge in the testing and improvement of known types of plants. New varieties must be developed and/or existing varieties improved to provide plants that are better adapted to the different land and climatic conditions of Pakistan. There is a need for varieties which are more tolerant to extremes of temperatures, water conditions and to soil acidity, alkalinity, or salinity, and more resistant to insect pests and diseases. Also, varieties that mature earlier or later, that can be grown in the off season, and that have better keeping qualities should be developed. The major responsibility for carrying out the plant breeding programme rests with the Provincial Departments of Agriculture. In the Plan, 1·4 crores of rupees are provided for the plant breeding programme.

30. *Rice.*—In East Pakistan the main rice breeding station located at Dacca will be provided with additional facilities and staff, and sub-stations will be established in the major geographical zones representing the different conditions under which rice is grown. Special efforts will be devoted to the development of varieties tolerant of salinity for use in the coastal areas, where tidal water sometimes comes into the fields, and reduces the yields of existing varieties. Work to develop hybrids from *Indica* and *Japonica* varieties will be intensified in both Wings. Some of the major rice-growing areas in West Pakistan have

no rice-breeding facilities, and we recommend that the Provincial Department of Agriculture should develop such facilities. Technological laboratories are essential for the development of better qualities in rice; we recommend that a laboratory in each wing should be established for this purpose by the provincial Departments of Agriculture.

31. *Wheat.*—In the past, improved varieties of wheat have been developed in the former Punjab and Sind. We recommend that this breeding work should be expanded to include the development of winter-hardy varieties of wheat better adapted to the severe winters of Quetta and Peshawar Divisions and the programme should also include the development of drought-resistant varieties which can be successfully sown from one to four weeks after the normal sowing season. Also, rust-resistant strains and varieties with stiffer straw should be developed. The wheat technological laboratory at the Agricultural College, Lyallpur should be reopened for testing the quality of grain.

32. *Maize.*— The introduction of hybrid maize (corn) has resulted in substantial increases in acre-yields in countries like the U.S.A. There is every reason to believe that the production of maize in Pakistan can be substantially increased by the evolution of suitable hybrids. Some work on this crop is being done in the former Provinces of N.-W.F.P. and the Punjab. The Plan calls for an expansion of that work.

33. *Millets.* --At present breeding work on *Jowar* is in progress only in the former Punjab. Practically nothing is being done on *bajra.* Millet breeding work is to be started in Rawalpindi and Hyderabad Divisions; we recommend that the Provincial Agriculture Department should develop plans for similar work in all important millet-growing areas of West Pakistan.

34. *Gram and pulses.*— Gram is subject to attack by diseases such as wilt and blight which in years of infestation reduce the acre-yields greatly. There is urgent need for the evolution of hybrids-resistant to these diseases; work now in progress in the former Punjab will be intensified.

35. *Sugarcane.*— As a result of insect attack, virus, and red rot diseases, sugarcane deteriorates over time. Degeneration of some of the varieties both in East and West Pakistan is already visible. In the former N.-W.F.P. pyrilla is taking a heavy toll of the crop. In the former Punjab viable seeds were produced under artificial conditions, but hybridisation of different varieties can be carried out more economically and on a larger scale under natural rather than artificial conditions. The expanded programme in both Wings will concentrate on the development of higher yielding varieties more resistant to diseases and insect pests, and higher sugar content. We recommend that the Provincial Department of Agriculture should establish a sugar cane breeding station at Ishwardi or some other suitable place in East Pakistan, and sub-stations in areas representing the major geographical conditions under which sugarcane is likely to be grown.

36. *Sugar beet.*— At present sugar mills run only about four or five months in a year. Their crushing season could be extended by about 3 months if sugar beet was available to supplement sugarcane. This additional source of raw material should both increase sugar production and reduce processing costs. The development of experimental work on sugar beet is already under way in the Peshawar Division and the Plan recommends its expansion.

37. *Oilseeds.*— Work now in progress in both Wings will be expanded with emphasis on the development of higher-yielding varieties of groundnut, rape, mustard, linseed, sesamum and castor seed.

38. *Jute.*—The Jute Research Institute at Dacca is nearly completed. Research at the Institute will include genetics, agronomy, physiology, pathology, entomology, economics

and technology. The new facilities of the Institute, together with a jute sub-station to be established will be used for breeding new and better strains of jute.

39. *Cotton.*—Good work on cotton breeding has been done, but still more needs to be accomplihsed. Cotton varieties which mature earlier and are more drought-resistant than existing strains, need to be evolved, and varieties suited to new areas such as the Thal and the Lower Sind need to be developed. Varieties more tolerant to salts are also required for some parts of West Pakistan, and possibilities of introducing long-staple cottons in East Pakistan need to be explored. The expanded programme for cotton breeding will be directed towards meeting these needs. In addition the Department of Agriculture of West Pakistan has initiated a scheme to acclimatise Egyptian varieties in Lower Sind ; provision for the continuation of the scheme has been made in the Plan.

40. *Tobacco.*—Research on tobacco is carried on in almost all the tobacco-growing regions. The programme provides for an expansion in tobacco-breeding work in both Wings, with special attention to the evolution of varieties suitable for the manufacture of cigarettes.

41. *Tea.*—Research on tea is carried on at the Srimangal Research Station in East Pakistan. We recommend that special emphasis should be placed on the evolution of superior varieties of tea to replace plants grown in old plantations and for planting new areas, and that the Research Station should conduct experiments with vegetative propagation for establishing uniform plantations of high-grade varieties of tea.

42. *Fruits and vegetables.*—Development of improved and higher yielding varieties of fruits and vegetables is needed for each of the major areas representing the different climatic and soil conditions. The Provincial Departments of Agriculture should develop programmes for this purpose. The programme in East Pakistan includes work on coconuts to develop high-yielding varieties, to determine economic spacings, and to discover means of reducing variations in the quality and quantity of copra oil, and fibre. In the Murree Hills a scheme for the evolution of improved varieties of deciduous fruits and their propagation is in progress. Provision has been made in the programme for its continuation. Date-palm is an important fruit tree of the dry arid plains of West Pakistan. In order to increase its production, it is essential to provide necessary facilities to the growers, such as, the supply of suckers and seedlings of improved varieties, marketing, and credit. Provision has been made in the programme for this purpose.

43. *Potatoes.*—Potatoes are rich in carbo-hydrates, and under suitable production conditions provide one of the cheapest sources of calories. There is need to evolve strains which are higher-yielding and resistant to diseases and pests, and varieties, suited to the local conditions. A Central Potato Research Bureau, with sub-stations in the major potato growing areas, will be established ; provision has been made in the Plan for this purpose.

44. *Onions.*—Plant breeding work on onions is required for the introduction of male sterile strains, and for the development of higher-yielding varieties by hybridisation. Programmes to accomplish these objectives should be started by the Department of Agriculture in each Wing.

45. *Fodder.*—There is need for evolving varieties which are higher-yielding, more nutritious and more resistant to drought, heat and pests. The Plan includes some work on fodder breeding in West Pakistan ; we recommend that this work should be expanded and similar work developed in East Pakistan.

46. *Plant introduction.*—Introduction of new plants, which can thrive under local conditions, may offer opportunities for increasing agricultural production. But to be successful this must be preceded by suitable research and pilot work. We recommend that the Central

Ministry of Agriculture prepare a programme for systematic investigation and import of promising trees, plants, and grasses for trial under local conditions. In the meantime we make a few suggestions.

47. *Cashew nut.*—Cashew nut is a delicately-flavoured tropical fruit and has gained popularity in many countries during recent years. At present Pakistan depends for its requirements upon imports from India. In East Pakistan the tree is growing in some localities and bears fruit. In order to expand its cultivation, nurseries of suitable varieties will be established to produce stock for distribution to growers.

48. *Ramie.*—Ramie (*Boehmeria nivea*) is grown in warm temperate regions. It has long and lustrous fibre which is stronger than cotton and is less affected by climatic conditions, chemicals and sea-water. It can be used for the manufacture of rot-proof textile fabrics, carpets, gas mantles, and fishing nets. In East Pakistan it is now grown in scattered patches. Possibilities of its cultivation on a commercial scale in East Pakistan and in Lower Sind deserve investigation. Apparently it has not been cultivated on a larger-scale in East Pakistan because of the difficulty of decortication and degumming the fibre. A machine will be imported and installed in East Pakistan for testing on a pilot project basis. The Department of Agriculture of East Pakistan is developing a scheme to produce ramie for this pilot project.

49. *Flax.*—Some experiments to grow flax were carried out in the former Punjab thirty years ago. These experiments pointed to the need for more systematic and sustained work on the acclimatisation, selection and breeding of suitable strains, and on methods of cultivation, retting and scutching. As the flax fibre is remarkable for its tensile strength, length of staple, fineness, and durability and can be used for a variety of purposes, the scope for the cultivation of this crop deserves exploration. We recommend that the Department of Agriculture of West Pakistan should develop plans for initiating this work.

50. *Soya bean.*—We recommend that the expanded programmes for plant breeding in each Wing should include the development of suitable varieties of soya beans for production in the major geographical areas where this crop might be grown economically.

51. *Spices.*—Spices such as cloves, black pepper and cardamom are cultivated at high altitudes in areas of heavy rainfall in eastern tropics. Schemes for the development of black and white pepper and ginger are included in the Plan. The possibilitiesof the cultivation of other spices should be investigated further by the East Pakistan Government.

### Seed multiplication and distribution

52. Evolution of improved varieties cannot help much unless the seeds are multiplied on the necessary scale and distributed to, and sown by, the cultivators. Seed multiplication and distribution is therefore, a very important part of the agricultural programme. It must be expanded without delay as a means to reach the agricultural production targets. Yields can be increased by as much as 10 to 25 per cent if improved varieties are grown by the cultivators.

53. The programme for seed multiplication and distribution is a responsibility of the Provincial Departments of Agriculture either directly, or by assisting individuals or organisations in their efforts to increase the production and distribution of improved seeds. A provision of 4·65 crores of rupees is made in the Plan for this purpose.

54. *Seed multiplication.*—Two types of seed multiplication farms are required : the first to produce nucleus seeds of new varieties under the close supervision of expert staff of the Agriculture Departments ; the second to multiply further the seeds from the nucleus stock for distribution to cultivators. The latter may be done either on Government farms or at private farms supervised by the Agriculture Departments.

55. At present the Departments of Agriculture lack adequate facilities for production of even the nucleus seed required for multiplication. Minimum annual replacement of improved seeds should be about 25 per cent for cotton and jute and about 10 per cent for other crops. The estimated production of seed of all the improved varieties of crops in 1953-54 was only 11,000 tons, compared with the total requirements of 104,000 tons at the minimum rate. In addition to seed produced on government farms, some pure seeds are produced by good cultivators and sold directly to other cultivators or purchased by the Agriculture Departments and distributed to other cultivators. No estimate of the quantities of such seeds is available, but they could not be large in relation to the total seed requirements.

56. The wide gap between the annual requirements of improved seed and their supplies must be closed. Government farms need to be expanded to enable them to produce all of the nucleus seed and about 20 per cent of the minimum annual seed requirements of the cultivators at the minimum rate of replacement.

57. In East Pakistan twenty farms of 100-acres each and two farms of 3,000 acres each should be established for the multiplication of seeds of all crops other than jute. The Pakistan Central Jute Committee is setting up two farms of 400 acres each for the multiplication of the nucleus seed of improved varieties of jute ; nucleus seed produced on these two farms will be multiplied by the Provincial Department of Agriculture for distribution to cultivators.

58. In the Rawalpindi, Lahore and Multan Divisions of West Pakistan, seed multiplication farms of about eight thousand acres in total should be established. In the Hyderabad and Khairpur Divisions 8 new farms of two thousand acres each, and one farm of five thousand acres will be established in the Lower Sind Barrage area for the production of improved seed of crops other than rice, and a second five thousand acres farm for the production of rice seed. Provision has also been made for the multiplication of sugar cane seed which will be needed in the Lower Sind Barrage area as development takes place. In Peshawar and D.I. Khan Divisions we recommend that four seed-multiplication farms with a total area of 4,700 acres, should be established. In the Quetta Division the programme includes two new farms and the expansion of three existing seed farms ; the additional area will amount to about 1,850 acres. The Plan includes provision for establishing new government seed farms in Bahawalpur Division and for opening farms for the production of nucleus cotton seed in the Rawalpindi, Multan, Bahawalpur, Khairpur and Hyderabad Divisions.

59. The Government farms we propose, should provide almost all the nucleus seed requirements plus about 20 per cent of the annual seed requirements of the cultivators at the minimum rate of replacement. The remaining 80 per cent of the annual seed requirements should be produced by private cultivators under the guidance of the Agriculture Departments. The seed growers should be given special incentives to produce pure seed of improved varieties. In East Pakistan, the proposed incentive is in the form of fertilisers, manures and seed at subsidised rates. In West Pakistan the incentive to be provided is in the form of premium prices, the system which is working satisfactorily in the Punjab areas. Funds to support these schemes are included in the Plan.

60. The Agriculture Extension staff must supervise the seed production work to make sure that growers produce good seeds. This work should be concentrated initially in the project areas of the Village AID programme.

61. The seed produced on private farms should be tested for its purity and germination in seed-testing laboratories. For this purpose three laboratories, one each at Dacca, Lyallpur, and Tandojam will be set up.

62. *Seed distribution.*—Seeds produced on Government farms must be brought within reach of the farmers. For this purpose, the West Pakistan Department of Agriculture has a number of seed agents in the Rawalpindi, Lahore and Multan Divisions. These agents are private shopkeepers who sell departmental seed to cultivators on a commission basis. Similar seed agencies are being set up in the Bahawalpur, Peshawar and Dera Ismail Khan Divisions. The conditions in East Pakistan and in Hyderabad, Khairpur, Quetta, and Kalat Divisions of West Pakistan are not favourable for such a system ; communications as well as other conditions are unsatisfactory. Private shopkeepers are unable to store seed satisfactorily with existing facilities. For East Pakistan we propose 55 government-owned stores to stock improved seeds, manures, agricultural implements, and plant protection materials for sale and distribution to cultivators. In Hyderabad, Kahirpur and Quetta Divisions, one depot in each taluka or tehsil is to be constructed. We recommend that these seed stores be located so that they can be linked easily with rural credit and marketing cooperatives to be established.

## Manures and fertilisers

63. Manures and fertilisers, when applied properly and when sufficient quantities of water are available, are means of bringing about quickly considerable increases in agricultural production. The increase in yield may vary within a wide range, depending on type of soil, crop, kind of fertiliser, and time and quantity of application. Under optimum conditions the increase may be as high as 50 per cent or more. It is especially important that the soil types and nutrient deficiencies should be determined. Complete and accurate soil surveys are not available with the result that the deficiencies of plant nutrients in various parts of the country are not known. Such information as is available indicates that the soils of East Pakistan are deficient in nitrogen and phosphorus, and those of West Pakistan in humus and nitrogen. Recent experiments have shown that the application of phosphorus in combination with nitrogen increases yields, especially in leached and partly water-logged areas of West Pakistan. The application of nitrogenous fertilisers like ammonium sulphate, has not given significant results on alkaline soils, and in some cases the results have been negative.

64. The use of artificial fertilisers was very limited until recently. Upto 1951-52 about 10 to 12 thousand tons of ammonium sulphate were used each year, mostly in East Pakistan, and mainly on the tea estates ; only 2 to 3 thousand tons were used in West Pakistan. To popularise the use of fertilisers, especially on food grains and cotton, the Government have imported large quantities of fertilisers for distribution at subsidized rates. The total quantities used during 1952-53, 1953-54, and 1954-55 were 5,000 tons, 77,500 tons, and 80,000 tons respectively. The programme provides a sum of 17·83 crores of rupees for the use of manures and fertilisers during the Plan period.

65. Data are not available to show trends in the use of manures like farmyard manure compost, urban wastes, bonemeal, oilcakes and fishmeal. In 1949-50 a scheme in East Pakistan was started to supply manures and fertilisers at a 50 per cent subsidy. The objective was to distribute annually for five years about 24 thousand tons of ammonium sulphate, 18 thousand tons of oilcakes, 15 thousand tons of lime, 30 thousand tons of bonemeal and super-phosphate, and 7 thousand tons of seed of green manure crops. Total distribution during the five years was only 10 thousand tons of ammonium sulphate, 11 thousand tons of oilcakes, 4 thousand tons of lime, 2 thousand tons of bonemeal and 200 tons of seed of green manure crops.

66. The programme provides for the distribution of 80 thousand tons of ammonium sulphate in 1955-56 and annual increases thereafter ; in 1959-60, about 280 thousand tons are to be distributed to cultivators. In addition, a scheme for East Pakistan has been

included in the Plan for about 5 thousand tons of bonemeal and 4 thousand tons of oil cakes to be distributed annually to the farmers at subsidized rates. A very great effort by the Central and Provincial Agriculture Departments will be necessary to get these larger quantities of fertilisers into effective use. The distribution system set up for handling improved seeds should be used for fertiliser distribution also. If necessary the Agriculture Departments should establish additional agencies and facilities in order to get the fertilisers into the hands of cultivators promptly and efficiently.

67. Government policy in recent years has been to subsidize fertiliser sales in order to popularise its use. We recommend that the subsidy should average about 50 per cent during the Plan period. The Plan provides funds for subsidizing the distribution of the specified quantities of fertilisers at that rate. We recommend that the Government should announce a policy that subsidies on fertilisers will be reduced gradually at a specified rate and discontinued by a specified time. The rate of reduction should be based on prices of fertilisers in relation to prices of agricultural commodities.

68. Fields where the fertiliser is to be applied should be selected carefully, especially in West Pakistan where soils are alkaline or contain excessive salt. Such soils may not give in all cases economic returns to the use of fertilisers. A very simple but effective test can be used as an aid in the selection of fields. With the use of indicators or dyes the degree of alkalinity or acidity in the soil can be determined. The necessary equipment for testing soils in the fields could be supplied to a selected number of village workers who could be trained to use them by the agricultural specialist of the project area. For more detailed soil analysis, the Agricultural Colleges and Research Institutes at Dacca, Lyallpur, Tandojam, and Peshawar provide facilities to the cultivators. The extension staff of the Agricultural Departments and of the Provincial Village AID Administration should encourage farmers to send soil samples to these laboratories for examination. The extension staff could show the cultivators how to take a sample ; the village worker could send the sample and relevant information to the soil laboratories. The laboratory should mail the results of the analysis, including recommended applications of fertiliser, to the village worker who would in turn explain the results to the cultivator.

69. Organic manures are valuable sources of plant nutrients. Almost all urine and a good part of the dung do not at present find their way into fields ; a large part of the dung is used as fuel and a portion is wasted. Even the remainder which is kept for use in the fields is not preserved properly ; as a result, useful plant nutrients are either leached away or oxidised. At least two measures are necessary. One is to develop and make more efficient use of alternative sources of fuel, so that farm-yard manure could be spared for use in the fields. There is a great need for evolving a hearth (*choolah*) which could use some cheap fuel to replace dung cakes. The second measure is to preserve properly whatever material is available for use in the fields as manures. Extension staff of the Agriculture Departments and village workers could teach cultivators how to handle manure properly.

70. Compost, night soil, green manure, oilcakes, bonemeal and fishmeal are other formsof organic manures and good sourcesof plant nutrients, especially nitrogen and phosphorus. In East Pakistan compost made from decomposed water hyacinth has been tried and proved successful; it can be prepared at low cost for extensive use by farmers. The Plan provides for work in compost making from night soil in East Pakistan. The Village AID programme stresses the importance of compost pits, and of effective demonstrations. The use of green manures has been encouraged by various concessions but has not been adopted extensively by the cultivators. The practice probably appears to be uneconomic because the growing of a crop for harvest may have to be sacrificed in order to produce a green manure crop. The programme provides for continuing the experiments already under way to determine the economics of green manure crops in both Wings of the country.

71. At present much of the oilcakes, bonemeal, and fishmeal produced in the country is exported and very little is used within the country. During 1953-54, manures and oilcakes worth nearly one million rupees were exported. These products contain a great deal of nitrogen and phosphorus and are rich in organic matter. The programme provides for investigations of the economic possibilities of using oil cakes, bonemeal and fishmeal. In addition, provision has been made for demonstration, educational and development work if the research results indicate that these products could be distributed and used economically as fertilisers.

72. Some research has been carried out in recent years to determine the optimum time and quantities of applications of various fertilisers on different crops. Useful results have been obtained, but much remains to be done. More and better research is needed to determine the response of different crops to fertilisers on different kinds of soil and especially to determine the joint effects of moisture and fertiliser on acre yields. There is a very urgent need for this research in order that the limited amounts of fertilisers may be used most economically. The Plan provides for such research in both Wings of the country. These experiments should be planned and conducted by well-qualified agriculturists, in consultation with agricultural statisticians and agricultural economists.

73. Practically nothing is known about the sufficiency or deficiency of micronutrients or trace elements such as cobalt and boron in soils. The soils of East Pakistan, subject to heavy rainfall, are very likely to be deficient in these essential elements. The programme in East Pakistan provides for research to identify and determine the effects of trace elements on the growth and yield of paddy.

**Plant protection**

74. No precise estimates are available to show the extent of losses from plant pests and diseases. Tentative estimates indicate that about 5 to 15 per cent of the total crop production is lost every year on this account. In some years there are severe infestations, and the damage is much greater. These losses can be reduced substantially by adopting appropriate control measures. The Plan provides 3·96 crores of rupees for carrying out the plant protection programme.

75. The most destructive pests and diseases of crops are boll-worm, jassids, root-rot and boll-rot of cotton ; stem borer of sugar cane, rice and jowar ; pyrilla of sugar cane and maize ; white and black fly of citrus ; mango-hopper ; mealy-bug ; codling moth of apples, pears and peaches ; die-back of citrus ; rusts and smuts of wheat, barley, and rice; blight and wilt of gram ; and helminthosporium of rice. In years of attack, locusts also inflict heavy damages to crops.

76. Responsibility for plant protection work is shared by the Plant Protection Department of the Central Ministry of Agriculture, and the Provincial Agriculture Departments. The Provinces have only small staff and limited amount of equipment and materials for plant protection measures ; they cannot deal effectively with epidemics covering a large area, or control pests and diseases of frequent occurrence. The Central Government have assisted the Provincial Governments by making materials and services available to them, and by extending grants for the execution of important schemes. In the past, 14 such schemes have been sanctioned by the Central Government at a total cost of nearly 4 million rupees to combat pests and diseases. Special work has been done in the former N.W.F.P. and Baluchistan areas where some protection has been achieved for sugar cane, maize, and fruit trees. The Department of Plant Protection of the Central Ministry of Agriculture was given the major responsibility for locust control work in the desert areas and is well equipped and staffed for anti-locust measures. From 1949 to 1953 control was applied

to about 200,000 square miles where locust appeared during the period ; practically no loss occurred to the crops from this menace except in 1952, when heavy damage was reported to the millet crop.

77. Many pests and diseases spread rapidly over large areas once in festation is started. For this reason infestations must be identified quickly in order to minimise the extent of areas to be treated ; the whole of the infested areas must be treated to prevent subsequent spreading from untreated areas. The plant protection organisations in the Central and Provincial Governments will train farmers to detect crop pests and diseases, and to apply treatments possible with their own implements and equipment. In addition, the Governments will conduct regular surveys of the incidence of crop pests and diseases, and apply treatment when large scale equipment, which cannot be economically owned by individual cultivators, is required. Initially the goods and services required for effective plant-protection measures are to be furnished free to the cultivators. We recommend, however, that there should be a definite programme for reducing the subsidy over a period of 5 to 10 years, until eventually cultivators pay all the costs of the materials and their application. The long-run goal should be to teach the cultivators to do most of the plant protection work for themselves ; in the villages the work should be part of the extension and Village AID programme. There should be a plant protection specialist in each tehsil, taluka, or subdivision, who would work with the agricultural specialist in each development area, train the village workers and demonstrate to the villagers the methods of plant protection. We strongly recommend that the Plant Protection Department of the Central Ministry and the plant protection organisations in the provinces should be staffed and equipped to supply the equipment, materials, and services required by the cultivators.

78. The costs of equipment and materials must be minimised. The high costof importing very highly-mechanised control equipment and the present necessity of importing nearly all the materials used make it vital to develop and use simple types of equipment where possible, which incidentally cultivators will learn to use more quickly. The possibility of manufacturing the equipment and materials locally should be fully explored. Investigation should be commenced to ascertain the feasibility of inducing some foreign chemical company to establish a subsidiary for assembling needed materials and eventually for manufacturing them in the country. In addition, the possibility of reducing the costs of materials by importing the pure chemicals and mixing them locally with the inert materials should be investigated. Many of the materials when ready for application contain 80 to 90 per cent of inert materials ; transport costs might be reduced considerably if the chemicals were imported in concentrated form.

79. Eight aeroplanes are available for locust control, but remain idle when there is no locust infestation. To make the maximum use of these planes, equipment and staff, the Plan provides for aerial sprays against pyrilla of sugar cane and maize in the Peshawar, Lahore and Multan Divisions, against fruit pests in Quetta and Peshawar Divisions, and against other destructive diseases and pests which can be controlled by aerial operations throughout the country. In addition, three aeroplanes are available in East Pakistan for control work. Provision is made in the Plan to combine aerial and ground control measures against pests and diseases in the Province.

80. In Quetta Division fruit pests like codling moth, almond scale, San Jose scale and green and black aphids cause heavy losses to the fruit growers ; the Plan includes schemes to reduce their incidence.

81. There is a need for a research unit to support the Locust Control Organisation. Aerial trials against locust should be conducted with various insecticides to find out the possibility of controlling flying and settled swarms, to test residual effects of insecticides, and to develop cheaper and more effective control techniques and equipment. This work

has recently been initiated by the Locust Control Committee and the Plan provides for its continuation. Kalat and Quetta Divisions are in the breeding regions from which flights to other parts of West Pakistan originate. Local locust control organisations in those areas will be strengthened and provided with transport facilities essential for efficient locust control work. The control work in those areas will be closely co-ordinated with the Locust Control Division of the Plant Protection Department of the Central Ministry of Agriculture.

82. Recent research in other countries has established the fact that insects develop immunity to certain chemicals such as DDT. Similarly, physiological forms of fungi are developed on which known chemicals are not effective. The Provincial Departments of Agriculture and the Universities should pay increasing attention to these problems. The Plan makes provision to initiate this kind of research. The programme includes research on the control of insect pests on paddy and fruit trees, rusts of wheat and barley, pyrilla of sugar cane, and root-rot and black headed cricket of cotton. The research programme should include investigations of the important diseases and pests commonly found in the country.

### Additional Research Projects

83. *Water requirements of crops.*—In addition to the measures discussed above, other means of increasing crop yields include more efficient use of water supplies, more effective cultivation with improved implements, and seeding at the most appropriate time with optimum rates and placement of seeds. The Plan provides a sum of Rs. 40 lakhs for expanding research and extension in these measures for crop improvement. Water utilisation problems are especially important. Generally there is too little water at all times of the year in nearly all parts of West Pakistan, and too much during summer and too little during winter in East Pakistan. There are many million acres of arable land in West Pakistan that will remain uncultivated because of lack of water; and on most cultivated lands sufficient water is not available for optimum yields. Although steps are being taken to capture more of the surface and underground water supplies for agricultural production, there is a vital need to determine how best to utilise the available water. Research work on the water requirements of different crops under different climatic and soil conditions is needed in order to determine the optimum application of water for maximum returns. The Plan provides for the expansion of work now under way at Resalewala (Lyallpur), and for starting similar work in other regions. The main emphasis of this work will be to determine (a) physical production relations—the simultaneous relations between quantity and time of supply of water, quantity of fertiliser and yields of important crops, (b) the water requirements of different crops on different types of soils, (c) optimum utilisation of surplus flood water in the rivers, (d) whether production can be increased more by utilising the additional water on lands already under irrigation, or on land not already irrigated, and (e) the most suitable cropping pattern to be followed in different areas.

84. The Plan includes special research schemes for crop improvement in the Guddu project, Taunsa Barrage, Ganges-Kobadak Project, Tharparker Desert, Kohistan and Cholistan areas, and for development of fruit production.

85. *Guddu project area.*—The construction of the Guddu Barrage to supply weir-controlled irrigation to the Upper Sind area on both sides of the Indus has been approved by the Government. At present about a million acres are cultivated by irrigation from inundation canals; this area will be increased to over two million acres after the completion of the scheme, when the entire area will receive weir-controlled supplies of irrigation water. Soil conditions and water supplies are different on the two banks; for this reason crop production is likely to be different. We recommend that two research stations, one for

each bank, should be planned and established by the West Pakistan Government to determine suitable crops for these regions, their water needs, optimum applications of manure, and so on. Provision has been made in the Plan for this work.

86. *Taunsa Barrage area.*—With the completion of the first phase of the Taunsa Barrage scheme, it will be possible to provide weir-controlled irrigation to about 700,000 acres, including the existing area in the Muzaffargarh and Dera Ghazi Khan Districts irrigated by inundation canals. Later a new weir-controlled canal will be constructed to provide irrigation to about 500,000 acres of new land in the Dera Ghazi Khan district. The progressive growth of the area under crops demands the establishment of an agricultural research station to find suitable crop patterns, optimum sowing time, and optimum doses and time of application of fertilisers to various crops, and their needs of water. Provision has been made in the programme for setting up a research station in this area.

87. *Ganges-Kobadak project area.*—The first unit of the Ganges-Kobadak scheme will provide assured water supply by lift irrigation to an area of about 700,000 acres, of which about 200,000 acres will be irrigated during the Plan period. A special organisation set up for research in this area has already begun research on water requirements of crops, and other agronomical problems connected with irrigated agriculture. Provision for this work is included in the Ganges-Kobadak scheme, which might with advantage include more experimental stations.

88. *Kohistan and Tharparkar desert areas.*—Development of Kohistan and Tharparkar desert areas have received little attention in the past. The annual rainfall varies from 6 to 14 inches in the Tharparker area, and from 4 to 9 inches in the Kohistan area. These areas can be developed partly as ranges for livestock, but there are also possibilities for improving the cultivation of agronomic crops like millets, oilseeds, and fodder. In order to find out the best methods of cultivation under dry farming conditions, we propose the establishment of two experimental sub-stations in these tracts for dry farming. In addition, ecological surveys and a systematic study of desert grasses need to be made, and better varieties of millets and oilseeds suitable to local conditions developed. Provision is made in the Plan for this programme of research.

89. *Cholistan.*—There are some possibilities, though limited, of developing general agriculture including animal husbandry in the Cholistan area of Bahawalpur Division by providing drinking water for human beings and animals, developing communications and food supplies, cultivation and conservation of grasses, and provision of health and education services. A scheme for the co-ordinated development of Cholistan on an experimental basis is already under execution; provision for its continuation is made in the Plan. The Plan includes provision for work on an expanded scale if the results of the scheme now in operation are found to be encouraging.

90. *Agronomy of fruit production.*—The mild and humid climate in the Lower Sind Barrage area favours the growing of fruits such as bananas, papayas, and chikoos. Schemes have been included in the Plan to determine the optimum planting season, manuring and irrigation requirements of these and other fruits, and hydraulic, manurial and pruning experiments on important fruits produced in Peshawar Division. Similarly, the Plan provides for conducting manurial and other trials on fruits and vegetables in Quetta Division. In East Pakistan, a horticulture scheme is in operation and provision is made for its continuation during the Plan period.

## MECHANISATION

91. 'Mechanisation' is generally understood in the country to mean the cultivation of land by tractors and tractor implements. In fact, it has a wider meaning and is not solely a matter of internal-combustion engines and the implements accompanying them. To quote an FAO report 'power is needed to wield tools, pull implements, and drive

machines, and it is these contrivances that ultimately perform the work desired, whether they are operated by muscles, wind, water, steam, hydrocarbon fuels or electricity.' Replacement of an indigenous plough by a modern implement, or a wooden persian wheel by an iron one or improvements in other animal-driven machines such as water lifters, sugar cane crushers, and threshers can be called improved mechanisation. The Plan provides for 4·24 crores of rupees for development of mechanisation.

### Tractors and equipment

92. The main goal of economic development is to increase incomes per family, which in agriculture, as elsewhere, can be achieved by increasing output per family. This increase in output can be brought about by introducing more and better tools for the use of the cultivators. One possible way to increase the production is through the use of tractors, but this can only be economic for a larger holding than is normally feasible in this country. The question of how far tractor cultivation should be adopted cannot be answered until systematic investigations have been made to determine the economics of tractor use. Some work was in progress two years ago at Resalewala (Lyallpur), but was discontinued as an economy measure. We recommend that this work should be resumed, and similar research started elsewhere. Pending such investigations, we recommend that tractor cultivation should be limited for the following reasons:

(*a*) Pakistan has a large labour force, the greater part of which is under-employed. There is also unemployment. The rate of population growth is high and there is a pressing and continuing need to find employment for those not now fully employed, and for young people who will join the labour force each year.

(*b*) Existing individual holdings are small and often fragmented and possibilities of farm enlargement are limited.

(*c*) The foreign exchange available to the country is limited and must be allocated by comparing the additions to national income from its alternative uses. Only, if the addition to national income from the use of tractors bought with foreign exchange is at least as great as what could be obtained with any alternative use of the same foreign exchange can the purchase of tractors be justified.

(*d*) Maintenance is costly, specially when both direct expenses and the losses that result from delayed work when tractors and equipment are broken down are taken into account.

Under the following conditions there might be cases in which the use of tractors and power machinery would be justified :

(*a*) Reclamation of derelict areas and culturable waste lands;
(*b*) Rapid development of land in the new irrigation project areas;
(*c*) Anti-erosion and flood control work; and
(*d*) Dry farming and moisture conservation work.

93. In East Pakistan the reclamation and drainage of derelict areas, and the pumping of water for *rabi* cultivation are worthy of serious consideration. There are large areas called *haor* lands in the Province where floods recede rapidly and soil dries out before all the land can be ploughed with bullocks. By the use of mechanical equipment it may be possible to get a crop that otherwise could not be cultivated. The East Pakistan Government have about 140 tractors and about 132 workable power pumps for this purpose. The tractors have been used for breaking up waste lands, in the *haor* and other areas which are widely scattered. Consequently maintenance and servicing of the tractors have been

extremely difficult operations. The tractors and pumps are hired out to farmers at subsidised rates. We recommend that the charges should be gradually adjusted upwards over a period of time, until the full costs of providing the services are covered.

94. Past experience in the use of power pumps has shown that small models could be used economically in East Pakistan. There are large areas on which crops could be produced during winter months if water could be supplied. Special attention must be given to arrangements for maintaining and servicing the pumps. The pumps now owned by the East Pakistan Government are to be sold, and only smaller pumps will be procured in future by the Government for sale to cultivators.

95. In West Pakistan, the total number of government-owned tractors is about 550, including three hundred owned by the Thal Development Authority. In addition there are a few thousand privately-owned tractors. The present number owned by the Government is enough to meet most of the immediate needs. Imports of new tractors and equipment on government account should, therefore, be limited to replacement, and to necessary heavy earth-moving tractors and equipment for land reclamation where bullock power is unsuitable. To increase the efficiency of these operations, every effort should be made to keep this capacity fully employed in order to minimise the cost per unit of output.

96. There may be some demand for small tractors, although such tractors have been found unsuitable elsewhere. Their economies need to be investigated carefully before imports on a large scale are allowed.

97. A major obstacle in the effective utilisation of mechanical equipment in agriculture is the shortage of spare parts. At present the firms dealing in such machinery do not import spare parts because the small volume of business in each of the makes does not justify the necessary investment. To alleviate this difficulty we suggest that the present multiplicity of makes of agricultural machinery should be reduced and only standard equipment of specific makes be imported. For this purpose, we recommend that an Agricultural Machinery Standardisation Board should be set up in the Central Ministry of Agriculture, to decide on the best types and makes of different kinds of agricultural machinery for different tracts and purposes. For providing spare parts which cannot be manufactured locally, we recommend that all possible assistance should be extended to tractor and equipment dealers for the necessary imports. A systematic plan should be developed for importing spare parts to accompany any imported tractors and equipment.

### Workshops

98. For efficient and economic operation of machinery two things are necessary: first, the machinery must receive skilled attention continuously; secondly, adequate repair and servicing facilities must be available. To meet these problems workshops are being set up by the Agriculture Departments for the maintenance and repair of farm equipment, for the testing, improvement and manufacture of agricultural implements, for the training of operators and mechanics for plant and field equipment, and for providing the necessary technical training for the establishment of village shops to make and repair small tools. Great emphasis must be placed on the production, improvement and maintenance of indigenous implements. These workshops should be made available to the operators of all types of agricultural machinery in the country in order to avoid unnecessary and wasteful duplication of facilities.

99. It would be difficult, expensive and wasteful of time to bring agricultural machinery to central workshops for minor repairs. Provision has, therefore, been made in the Plan for mobile workshops specially for areas in which tractors are used. In East Pakistan 2 zonal workshops in addition to the main workshop at Dacca will be set up.

### Introduction of improved small implements

100. At present the agricultural output per man and per bullock in the country is very low. It can be raised by improvement in farm equipment. Research has been directed towards improving the implements used by the cultivators. Several small agricultural implements have been evolved which can increase production or reduce expenditure or both. Few cultivators have, however, adopted them, and it may be necessary to subsidise their sales initially. Provision has been made in the Plan for subsidising the sale of improved implements on a pilot basis; if the results are encouraging it could be extended to other areas.

### Water lifting equipment

101. *Windmills.*—Wind and water driven power units have reached a high state of efficiency in some parts of the world. There seems to be room for the introduction of windmills for pumping water in West Pakistan. In order to investigate the feasibility and economics of these mills, and for their installation on a pilot project basis provision is made in the Plan for a start in the hinterland of Karachi, Kalat Division, the Tharparkar area, and the Cholistan area where the wind velocity is usually above the minimum (6 miles per hour) required for the efficient working of a small windmill. The first goal should be to raise the water needed for range and livestock development in the semi-arid areas. We recommend that the Agriculture Department, West Pakistan, should develop plans for this work.

102. *Persian wheel.*—The Persian wheel is the most commonly used appliance for lifting water in the well-irrigated regions of West Pakistan. In some cases buckets used are made of earthenware; in others of iron sheet. In certain localities some parts of the persian wheel are made of wood; in others, iron is used. Replacement of the earthenware and wooden parts with iron will increase the efficiency and discharge of the wheel. Provision has been made in the Plan for the study of such improvements.

103. Additional research is needed to develop other improvements: (a) to improve the mechanical efficiency of the wheel by reducing frictional losses and unproductive lift, (*b*) to determine the most effective means of utilising animal energy, and (c) to investigate improved techniques in the use of the wheel by studying the systems of pumping, spillways and channels. The research must be designed to evolve a persian wheel which is more efficient yet cheap enough to be economical for use on small farms. The Brownlie model evolved at Lyallpur is efficient, but the cost is very high. Provision is made in the Plan for the necessary research.

104. *Water pumps.*—There is considerable scope for introducing small power-pumps to replace persian wheels for raising water from open wells. Some research along this line is being done by a firm, who provided pumps to selected cultivators for field trials. We recommend that the Agriculture Departments develop plans to assist with the distribution of these pumps if they prove to be economical. If necessary such assistance should include subsidies in the initial stages.

### Centrifugal machines for sugar manufacture.

105. Pakistan is substantially deficient in white crystalline sugar, and imports about 160 thousand tons of sugar worth about Rs. 60 million each year. At present about 10 per cent of the total acreage under sugar cane is processed by the sugar mills, which produce annually about 80,000 tons of sugar. More mills are contemplated, but there are serious handicaps in expanding this industry including (a) the heavy capital investment required, (*b*) shortage of technical skill, (c) inadequate means of transport, and (d) dependence on a

highly variable supply from the cultivators. In order to reduce the import of sugar and heavy machinery the present sugar production can be supplemented if cultivators are encouraged to use hand-driven machines in the villages remote from the big mills.

106. Information available indicates that in West Pakistan the cost of production per unit of sugar is less when produced with hand-driven machines than when produced by large-scale factories, although the quality of the latter is superior. Further, research is needed on this problem. We recommend that initially hand-driven machines, which can be manufactured locally at a cost of Rs. 300 to 350 each, should be provided for demonstration purposes in those village AID areas where sugarcane is extensively grown. Farmers should be encouraged to purchase such machines; we recommend that in order to popularise their use, a subsidy of 20 to 25 per cent should be given. The West Pakistan Government should formulate a programme for this work; provision has been made in the Plan.

**Pest control equipment**

107. Pest control can be accomplished effectively in certain cases with power equipment, and this equipment should be used whenever it is available. But many forms of plant protection can be applied with hand-operated equipment. The policy should be not to purchase power sprayers and dusters for operations that can be performed as well with hand equipment. For the many types of pest control operations which can be done only with high-pressure mechanical equipment, provision is made in the Plan.

## MARKETING AND STORAGE

108. The development of marketing means expansion and improvement of marketing facilities, organisations, and systems, and marketing services, such as inspecting and grading, providing market information, and extension services. In the Plan 5·40 crores of rupees are provided for marketing and storage programmes.

109. In India prior to partition, an Agricultural Marketing Department was organised in the Central Ministry of Agriculture in 1934 on the recommendation of the Royal Commission on Agriculture in India, 1928. Most of the Provinces and States followed suit and established Marketing Sections or Departments. After partition, the Central Agricultural Marketing Department was re-named as the Co-operation and Marketing Department. An Agricultural Economics unit was created in the Ministry of Agriculture and was combined with the existing Statistical Section, which hitherto has mainly concentrated on the issuing of crop estimates, quarterly weather and crop reports, and commodity situation reports.

**Marketing**

110. The Co-operation and Marketing Department issues All-Pakistan survey reports on the marketing of agricultural commodities and in addition conducts development work. Hitherto it has issued two reports, one on dates and the other on rape seed and mustard; reports on fresh fruits, cattle, honey, and tobacco are said to be in preparation. We recommend that survey reports on important crops both for internal consumption such as wheat and rice and for export such as jute, tea, and cotton should be initiated and completed as early as possible. These reports should provide valuable information to producers, traders, exporters, and consumers.

111. On the side of development, the Department is mainly concerned with the grading of agricultural commodities. Wool grading commenced on a voluntary basis in February, 1954, and for exports was made compulsory in September, 1954. By March

1956 about 5,913 samples representing 134,000 bales of wool had been tested. We recommend that the wool grading scheme, which now is running on year to year basis, should be placed on a permanent basis. Private traders are reported to be using grades of jute and tea. No official grades are used for any other export commodity, such as cotton lint, fish, oil seeds, oil seed cakes, and tobacco. A cotton seed grading scheme was launched in April, 1950 and remained in operation until April, 1951, when it was stopped because the grade specifications were not acceptable to the trade. Small quantities of ghee, eggs, and mustard seed are also graded on a voluntary basis. Grading of butter is still in the experimental stage. A scheme for the compulsory grading of hides and skins is under consideration.

112. The grading of commodities in accordance with accepted standards is an important pre-requisite for efficient marketing. It facilitates buying and selling : the buyer is more certain of what he is purchasing and is prepared to pay on the basis of quality, while the seller gets returns according to the quality of the produce. It helps foreign trade because foreign buyers often purchase without inspecting the products, and also facilitates storage and market intelligence. A greater effort should be made to determine the characteristics which effect demand, and to develop grades on the basis of those characteristics. This is necessary to enable sellers to sort the products into appropriate grades. We recommend that the Cooperation and Marketing Department should expand its activities in this sphere. Priority for grading should be given to exportable commodities like cotton and jute, because foreign exchange earnings can be increased by means of a sound grading system. The commodities to which attention should be directed next are hides and skins, tobacco, dates, rice, and wheat.

113. The present system of rural marketing does not ensure for the cultivators a fair return for their produce. The profit margin of the middlemen is high, at times unbelievably and exorbitantly high, while the services they perform are sometimes inefficient and expensive. There are several fraudulent practices prevalent in the markets which deprive the farmer of a fair price, and market intelligence is extremely inadequate. Adequate market information would aid considerably in reducing price fluctuations and disparities between different small markets.

114. The former Governments of the Punjab, N.W.F.P., Sind and Bahawalpur passed laws to regulate the markets (*mandies*) and eliminate the malpractices prevalent in them. Only the Punjab Act of 1941 has been enforced; about 85 Punjab markets have been brought under this Act and their day-to-day working controlled by market committees composed of growers, traders, and officials. Weighmen, brokers, commission agents, and other market functionaries are licensed and their charges controlled. Weights and Measures Acts, passed in the former Punjab and Sind before partition and in N.W.F.P. after partition for the purpose of standardising and unifying weights and measures are being enforced. They should be extended to wider areas and applied more rigorously.

115. The Central and Provincial Governments are taking steps to provide growers, traders, and other interested parties with price quotations and other market information. Daily prices of agricultural commodities and livestock products are broadcast from Karachi, Dacca, Lahore and Peshawar, and published in leading newspapers. Weekly and monthly prices are collected from important markets and published in the monthly bulletin " Markets and Prices ". We strongly recommend that market information should be given much greater emphasis in the agricultural extension and Village AID work.

116. It will be necessary for the Government to provide additional services and facilities such as credit, storage, and managerial skill in marketing. All these services are closely inter-related and must be developed into a well integrated marketing system. Eventually the marketing system should be based on rural co-operative organisation,

supplemented by private and government enterprises. In the initial stages, the extent of government participation must necessarily be greater than will be necessary when sound cooperative organisations are formed and are operating efficiently.

**Storage**

117. Consumers of most agricultural commodities prefer that their requirements should be made available to them in a relatively even flow over time. A stable flow of raw materials makes it possible to process them more efficiently because plant capacity can be fully and evenly employed. On the other hand, harvests are highly seasonal and often vary widely from one year to another : in recent years production of food grains, for instance, ranged from 11·5 million tons in 1952-53 to 14·2 million tons in 1953-54, a difference of 2·7 million tons or about 20 per cent.

118. Facilities at least for the storage of reserves to be held by the Government are inadequate at present, and requirements will increase with the growth of production and of population. An adequate storage system for food grains must be provided in order to prevent the recurrence of acute food shortages which at times approach famine conditions and to stabilise food prices ; this is a basic condition for a steady programme of economic and social development. In the Plan a high priority is given to the development of a storage system for food grains but much work has to be done to determine the desired level of reserve and capacity, and the location of facilities.

119. Storage facilities are required by producers, traders, processors, and the Government. In the villages the farmers and artisans store their wheat, rice, and other food grains in their homes, primarily for consumption and for seeding the next crop. Most of what is for sale is sold immediately after harvests. No accurate estimates of the amount of produce consumed on the farms are available. A rough estimate is that about 75 per cent of the wheat in West Pakistan and a somewhat higher percentage of the rice in East Pakistan is consumed by the producers themselves, while the remainder enters the trade channels. In home storage some care is taken against insect pests, and dampness, by sun drying when required, but there are considerable losses due to insects, and vermin. Few, if any, villagers use modern methods of protection against pests in stored grain, partly because of ignorance and partly because of inability to buy the insecticide and the equipment. No data are available to show whether the storage accommodations available to the individual farmers are adequate for their needs. Villagers must be shown how to safeguard their produce against losses by insect pests, and vermin ; this can best be done by devising suitable and economical storage bins for the cultivators, and introducing them by means of an educational campaign conducted by the extension and Village AID workers.

120. Traders have their own stores and warehouses in the markets where grain is stored after it has been purchased from the villages. The usual practice is to store this produce either in gunny bags or in bulk. Usually these godowns are ordinary rooms and provide conditions favourable for the rapid growth of all the agents which damage the produce. No fumigation or other insect control measures are usually taken. Losses in the market-towns can be reduced considerably by suitable storage facilities, and by regular treatment of the godowns with suitable chemicals. For this purpose guidance should be provided by the Plant Protection Sections of the Agriculture Departments. Fumigation of godowns and stores should be started in the development areas of the Village AID programme, and extended to other areas as soon as possible.

121. The additional stores and warehouses constructed under the rural credit programme and by private individuals and organisations should go far to meet the needs for seasonal storage. In addition, there is a very acute problem of providing storage facilities

for the annual carry-over of food grain stocks to adjust the year-to-year fluctuations in production to the more stable pattern of consumption. A summary of the present situation with respect to grain storage capacity of government facilities is shown in Table 7.

TABLE 7

*Government storage facilities for foodgrains*

| | East Pakistan | West Pakistan | Total |
|---|---|---|---|
| | | (in thousand tons) | |
| 1. Capacity at partition ... ... ... ... ... | 200 | 90 | 290 |
| 2. Construction of 40 thousand tons storage at Karachi ... | ... | 40 | 40 |
| 3. Construction of godowns/bins storage accommodation sanctioned in 1953. | 100 | 328 | 428 |
| (*a*) completed by December 1955 ... ... ... | (7) | (305) | (312) |
| (*b*) under construction ... ... ... ... | (23) | (20) | (43) |
| (*c*) not yet begun ... ... ... ... ... | (70) | (3) | (73) |
| 4. Modern storage of foodgrains (approved by Planning Commission but not yet begun) ... ... ... ... ... | 100 | 100 | 200 |
| Total constructed or approved ... | 400 | 558 | 958 |
| 5. Additional storage proposed by the Board ... ... ... | 75 | 75 | 150 |

122. In 1955 the Government decided to establish and maintain a reserve of 500,000 tons of wheat and 100,000 tons of rice. To make these reserves workable a total of 900,000 tons of storage capacity was considered necessary.

123. We doubt whether the storage capacity of approximately 900,000 tons and reserves of 100,000 tons of rice and 500,000 tons of wheat are adequate. In the Plan, therefore, we have provided for the additional construction of 150 thousand tons of storage capacity (75 thousand tons in each Wing), in addition to the capacity of 958 thousand tons shown in Table 7. We recommend that the Central Ministry of Food in cooperation with appropriate Provincial Departments should review the food grain problem as a whole and develop a complete storage programme, and marketing arrangements necessary to support it. The question of establishing a public corporation for grain storage should be also considered.

124. Little information is available about storage facilities for jute in East Pakistan and cotton in West Pakistan, on which a specific programme could be framed. A survey should be carried out for this purpose by the Co-operation and Marketing Department of the Central Ministry of Agriculture.

125. *Cold storage.*—At partition most of the cold storage plants on the sub-continent fell to India. One of their important uses was to store seed potatoes for distribution to the farmers ; the shortage of cold storage space after partition resulted in a considerable reduction of the potato acreage. In East Pakistan alone the area went down from 99,000 acres in 1947-48 to 44,000 acres in 1950-51. The cold-storage situation was studied recently under the programme of the F.A.O. and the Colombo Plan. Based on the results of these investigations we recommend that cold storage warehouses be constructed at Dacca, Santahar, Chittagong, Hyderabad, Sukkur, Bahawalpur, Multan, Jauharabad, Leiah, and Mardan. Necessary provision has been made in the Plan for the execution of this programme. These facilities should be used for storing seed potatoes, as well as for preserving fresh fruits and fish wherever possible. As experience is gained in their use and profitability, private capital should be forthcoming to set up additional cold-storage plants.

126. The North Western Railway has about 342 refrigerated vans which are used for the transport of fruits and other perishable commodities. Such services should be increased both on the East Bengal and North Western Railways to facilitate the rapid flow of perishable commodities from the surplus to the deficit areas with a view to stabilising prices and bringing better returns to growers and better value to consumers. Provision for increasing the number of refrigerated railway vans is made in the transport programme.

127. At present there are no refrigerated ships plying between East Pakistan ports and Karachi, with the result that the quantities of perishable commodities moving between the two Wings are very small. When the retail prices of grapes in Karachi is about one or two rupees a seer, the prices in Dacca are Rs. 10/-/- to Rs. 15/-/- a seer ; bananas can be found abundantly at low prices in East Pakistan when in West Pakistan supplies are small and prices high.

## FISHERIES

128. Pakistan has great potentialities for the development of fisheries resources. Increased production of fish will help to reduce the existing protein deficiency in the diet of the people, earn foreign exchange and provide manure, fish meal and many valuable industrial by-products.

### Recent progress and present conditions

129. The Central Government recognised the importance of the national fisheries resources by creating in 1951 a Department of Fisheries in the Ministry of Agriculture. The mission of this Department is to stimulate the development and utilisation of fisheries in the coastal areas, to initiate research, and to coordinate the fisheries work of the Provinces through the Ministry of Agriculture. East Pakistan has an independent Department of Fisheries ; in the former Punjab a fisheries section existed in the Department of Agriculture and in the former Sind a Fisheries Department existed until 1950 when it was abolished. In no other Province did such a department or section exist.

130. Some progress in the development of fisheries resources has been made since partition ; much more needs to be done. The Central Fisheries Department has surveyed the fisheries of the Makran Coast. On the basis of its findings, the Department has prepared a development plan that forms the basis for much of the programme for marine fisheries development described in this section.

131. The Central Fisheries Department has been carrying on several research schemes initiated before partition by the former Sind Department of Fisheries. The most significant of these were the deep sea and inshore exploration, which incidentally provided an opportunity for testing fishing gears and methods. These experiences revealed the need for providing the Karachi Fish Harbour with processing, storage and refrigeration facilities.

132. In addition, technological and biological research is being carried out in the laboratory by the Central Fisheries Department including studies of fish drying and curing methods, processing of fishery products like manure and meal, and analysis of the vitamin content of shark liver oil, biological research has been concentrated mainly on the study of sardines, mackeral and tuna and on the biology, ecology and migratory habits of the hilsa fish. The Department also collects economic data of the fishing industry.

133. The East Pakistan Government are executing schemes both for the development of fish resources and research on industrial uses of fish and fish by-products. They have sponsored three schemes to augment fish production : (*a*) the reclamation of derelict areas; (*b*) a fish landing jetty at Khulna Ghat; and (*c*) twenty fish seed farms.

134. The East Pakistan Department of Fisheries also conducts technological and biological research. The research is being done on prawns, fish manure and meal, fish drying and curing, fish growth, fertilisation of water, mosquito control by fish and elimination of predatory fish from impounded waters. Research is also done in methods of extracting vitamin from shark liver oil, glue from fish scales, lubricating oil from porpoise and printer's ink from shark's liver sediment.

135. Although handicapped by lack of finance and staff, the former Punjab Government Fisheries Section made substantial progress after independence, greatly increasing the number of fry farms and fish farms, stocking rivers, village ponds and other fish water areas with appropriate varieties of fish, and establishing demonstration farms in order to show the villagers better methods of fish production.

136. The production of fish in the country has increased. The available figures, given in Table 8 however, show that the production has increased from 236 thousand tons in 1951 to 256 thousand tons in 1954, an increase of about 8 per cent only.

### TABLE 8

*Production of Fish*, 1951—54

| Year | East Pakistan |  | West Pakistan |  | Total Pakistan |  |  |
|---|---|---|---|---|---|---|---|
|  | Inland | Marine | Inland | Marine | Inland | Marine | Total |
|  | (in thousand tons) |  |  |  |  |  |  |
| 1951 ... ... ... | 156 | 20 | 14 | 46 | 170 | 66 | 236 |
| 1954 ... ... ... | 170 | 23 | 15 | 48 | 185 | 71 | 256 |

*Source* : Central Fisheries Department, Ministry of Agriculture.

Most of this increase has come from inland fisheries largely in East Pakistan.

**Development Programme**

137. Although there has been some increase in fish production during recent years, the potential fisheries resources remain practically unexploited. During the First Five Year Plan attention should be devoted mainly to increasing production in the inland and in-shore fisheries, and to the exploration of off-shore and deep water fisheries.

**Production**

138. In the field of production the following items need special consideration : (*a*) exploration of fishing grounds in the inshore waters ; (*b*) construction of fishing harbour and mechanisation of the marine fishing crafts ; (*c*) fish culture in rivers and in impounded waters ; (*d*) extension services; and (*e*) credit.

139. *Exploration of fishing grounds in the coastal areas.*—In East Pakistan there has been no exploratory survey of the fishing grounds. Two exploratory fishing vessels equipped with modern machinery and scientific equipment and one carrier vessel fitted with refrigerated hold will be obtained by the Central Fisheries Department for exploring the fishing resources and transport of fish. These vessels will also be used for biological and planktological investigations on life history, food habits and spawning and migration of fish.

140. In West Pakistan the two fishing vessels which have been used for exploration of inshore fishing resources, will need replacement during the Plan period. The Central Fisheries Department has prepared a scheme for the construction of two exploratory vessels

with steel hulls, which, in addition to the exploratory work, will also carry out preliminary work on oceanography. The exploratory surveys now under way are not expected to be completed before 1960. It is recommended that exploratory work in the coastal areas of both the Wings of the country be co-ordinated to facilitate shifting of personnel and equipment between the two areas in order to use them most effectively and accomplish the objects as rapidly as possible.

141. Special emphasis should be placed on efforts to locate shrimp beds both in the Arabian Sea and the Bay of Bengal which could yield large crops for export. The Government should encourage and assist private enterprise in setting up shrimp and fish processing plants for supplying the export market. One such firm started functioning in Karachi in 1955.

142. *Mechanisation of marine fishing craft and construction of fishing harbour.*—In East Pakistan there is need to improve the present types of fishing craft. We have made provision in the Plan for research and experimentation to this end.

143. For the mechanisation of fishing craft in West Pakistan 30 outboard engines were recently obtained and supplied on trial to fishermen ; 80 more engines are expected to be purchased by the Central Fisheries Department during the Plan period, for sale to selected private operators on credit.

144. At Karachi, the construction of a modern fish harbour started in 1955. This will provide facilities for berthing and unloading fishing craft, as well as for ice-making, cold storage, processing, net repair and training. This is expected to increase the production of fish, and reduce fluctuations in its prices. The harbour is expected to be completed by the end of 1958.

145. Better and stronger nets help to increase the catches. This can be achieved if the material used for net making is suitable for the purpose. Nylon is an ideal material and should be utilised to make large gill nets for fishing. Provision has been made in the Plan for importing 1550 maunds of this material at a cost of one and a half million rupees.

146. *Fish culture in rivers and impounded waters.*—East Pakistan has a good potential for the development of fish production in impounded waters. There are large derelict areas, *bhils*, ponds and tanks, which if reclaimed will offer great possibilities for increasing fish production. Previous work, carried out in this direction, has been successful and during the Plan period it will be extended to cover more than 3,000 acres. We recommend that this work, along with the establishment of fish seed farms and nursery fish farms, should be particularly stressed in the Village AID areas. Provision for this programme has been made in the Plan.

147. Very little information is available on the fisheries in rivers, canals and impounded waters of West Pakistan. A comprehensive programme for their development remains to be worked out.

148. *Extension services.*—The Department of Fisheries in East Pakistan is well staffed down to the Sub-Divisional level, but practically no extension staff exists below this level. We recommend that as the Village AID programme expands extension staff should be employed wherever found necessary. At present the urgent need in the rural areas is better leadership and coordination from the departments concerned so that the available resources for an integrated programme are mobilised to the maximum. For this purpose we recommend that a committee representing the Village AID Organisation, the Fisheries Department and the Cooperation Department should be set up, to formulate and implement an integrated programme for developing inland fishing.

149. In the lower Indus Valley, especially in Hyderabad Division, there are a number of lakes which can be profitably exploited for the development of fish. Similarly there is a considerable scope for increasing fish production in the Upper Indus Valley. In addition the possibility of expanding fish production in waters held by dams and barrages should be fully explored and the opportunities for development exploited. In order to develop the inland fisheries of West Pakistan, the Fisheries Section of the Agricultural Department should be detached and expanded as an independent organisation. This department should be headed by a Director and should have two circles with a Deputy Director in charge of each.

150. We recommend that fish seed production and its distribution should be linked with the Village AID programme, and should first be started in development areas. As the Village AID programme expands, extension staff for providing services to fishermen and villagers should be appointed wherever needed.

151. *Credit.*—Credit is badly needed by fishermen in all parts of Pakistan. The general problem of rural credit is discussed in another chapter. Special efforts are needed for setting up cooperative societies in the fishing villages, and wherever any promising societies already exist, they should be fully supported and strengthened. In addition, marketing facilities and assistance should be provided to the fishermen through the medium of co-operatives.

**Storage, processing, transport and marketing**

152. Fish is a highly perishable commodity, and the transport, storage and marketing systems are not adequate ; as a result the wastage that occurs of fish production is unnecessarily large. It is of the utmost importance that these services should be improved so that waste and deterioration are reduced to the minimum.

153. For the transport of inland catches to the consuming centres refrigerated railway wagons and steamers with refrigerated space are needed. The possibility of transporting fish in insulated ice-proof boxes, which could be manufactured locally, should also be explored.

154. A terminal market at Khulna is needed for fishermen on inland waters of East Pakistan and a similar market at Chittagong for the Bay of Bengal fishermen. There is also a great need for transport services for the fishermen in Khulna area to assemble fish from collection points and to convey it to markets. Provision for the necessary marketing facilities has been made in the Plan.

155. The Plan provides for receiving stations to be set up by the Central Fisheries Department in each of the six fishing villages along the coast of the Arabian Sea. There the catches would be sorted ; the low quality fish converted into fish meal for animal and poultry feed and fertilisers, while the fish to be sold fresh would be transported to Karachi in sea transport vessels with refrigeration facilities ; the remaining fish would be processed (dried or salted) and transported to Karachi. Each station would have cold storage and ice-making facilities, concrete salting vats, sanitary drying mats, and fish meal plant. Improvement of the coastal roads near Karachi will also help the fishermen to transport their fish during the monsoons. Provision has been made for this purpose in the road programme.

156. For the sea transport of fish, two sixty-feet diesel-powered transport vessels with refrigeration facilities for fresh fish as well as some dry-cargo and passenger carrying capacity should be acquired for use along the coastal areas of West Pakistan. The Plan makes a provision for the purchase of these vessels by the Central Fisheries Department.

157. The fisheries industry should be supported by competent training institutes and by practical research. For instance, research is needed to determine the fish which can breed in confinement. Some experimental work is being done in this direction in East Pakistan with tilapia from Thailand and trichogester from Singapore ; more needs to be done. It is also important to find out the best type of fish and the most suitable methods of raising fish in paddy fields of East Pakistan, especially in the saline area of Khulna district. Similarly, detailed investigations are needed to discover the most effective and economical methods of controlling aquatic vegetation and eliminating predacious animals in tanks, and to study the classification, distribution, and migratory habits of hilsa. The Plan provides for this research, and also for work on the introduction of exotic fishing gear.

158. The Plan also provides for facilities for research and for the training of fisheries specialists at Karachi, Dacca, Chittagong and Lyallpur.

### Private enterprise

159. There is a demand from abroad for fresh edible fish like shrimp, deep sea fish, dry fish, and fishmeal. Necessary support to private enterprise in the form of foreign exchange for the purchase of machinery and equipment will in the end not only earn substantial foreign exchange but will also help to increase supplies for home consumption.

### Investment programme

160. We feel strongly that it is possible as well as necessary to increase the programme for fish production. With well-organised efforts a larger productive programme should be possible. There are not many programmes under agriculture and its allied branches which can produce substantial results in the short run. But fisheries is one such promising field and we will do well to expand and develop it to the maximum. We have devoted special attention to this programme and expanded it wherever possible, but the possibilities of further expansion need to be explored. Substantial increases in fish production are possible and are necessary for improving the dietary resources of the country.

161. The provisions made in the Plan for public expenditure on the development of fisheries are as shown in Table 9.

TABLE 9

*Expenditure on Fisheries, 1955—60*

| | (Lakhs of rupees) |
|---|---|
| 1. Exploration of marine fishing grounds ... ... ... ... ... ... | 25 |
| 2. Karachi fish harbour ... ... ... ... ... ... ... | 98 |
| 3. Mechanisation of fishing craft ... ... ... ... ... ... | 24 |
| 4. Inland fish culture ... ... ... ... ... ... ... ... | 81 |
| 5. Extension services ... ... ... ... ... ... ... ... | 12 |
| 6. Credit ... ... ... ... ... ... ... ... ... | 11 |
| 7. Storage, processing, transport and marketing ... ... ... ... | 14 |
| 8. Research ... ... ... ... ... ... ... ... ... | 16 |
| Total ... | 281 |

# ANIMAL HUSBANDRY AND DAIRYING

## Present conditions and problems

162. Livestock plays an important role in the agricultural economy of Pakistan. Farm animals provide most of the draught or motive power for agricultural operations, they supply meat and milk, hides and skins, wool, hair, eggs, manure and a number of minor products.

163. No livestock census has been taken since independence, so that no accurate statistics of present livestock numbers and production are available. The quinquennial census held in 1945 and estimates prepared in 1948 indicate that there were about 48 million livestock, and 27 million ducks and poultry in Pakistan. The livestock situation deteriorated after independence, especially in West Pakistan. On the one hand, some good stock was taken away by evacuees and some let loose only to be slaughtered for food by incoming refugees ; on the other hand, meat requirements increased as a much higher percentage of population after partition was Muslim. Further increase in the demand for livestock and livestock products will accompany the growth in incomes and in population.

164. In urban areas there is an acute problem of supplying meat and dairy products. Milk dealers bring milch cows from rural areas to the towns and sell them for slaughter at the end of their lactation period. There are no statistics, but undoubtedly the number of good milch animals has decreased considerably since independence. The additional milk production, obtained as a result of improved breeding, is probably more than offset by losses of cattle from contagious diseases and from indiscriminate slaughter.

## Animal Husbandry

165. The existing cattle breeding farms produce a limited number of bulls for distribution. In East Pakistan, farms at Dacca and Sylhet breed *hariana* and Red Sindhi cattle, and Murrah buffaloes. No clearly defined breeds are found in the province ; in the past, efforts were made to improve the indigenous stock by cross-breeding with *hariana* but no bulls of this breed have been imported since independence. In West Pakistan, Government farms at Malir and Mirpurkhas produce about 50 Red Sindhi bulls a year, and there are a number of other model farms breeding pedigree stock. For instance, in the former Punjab there are three farms producing about 150 pedigree *Dajal*, *Sahiwal*. *Nili*, and *Ravi* bulls annually ; *Sahiwal*, cattle are bred on two grantee farms, and *Dhanni*, cattle at the Commonwealth livestock farm recently established in the Thal. The annual output of these farms is grossly inadequate to meet the needs for distribution in the rural areas to upgrade the existing breeds.

166. In East Pakistan, five Government poultry farms in or around important towns produce chicks and eggs of foreign breeds for distribution to the poultry keepers to help upgrade their indigenous stock. The number of Government poultry farms in West Pakistan is somewhat greater. The Central Government has a poultry farm at Landhi near Karachi, which caters mainly for the needs of the Federal Area.

167. There are no farms in the country specialising in the scientific breeding of sheep and goats. In the former Punjab and Sind, sheep are maintained on cattle farms, and in Bahawalpur Division there is one grantee farm exclusively engaged in breeding sheep. However, there are several good breeds of sheep in West Pakistan that produce good quality carpet wool which is in demand in foreign markets. In certain areas of East Pakistan, the goat population decreased considerably after partition, and especially during the floods of 1954 and 1955.

168. Proper feeding is important for improving the livestock industry. General experience shows that balanced feeding alone can, on the average, increase the milk yield per milch-animal by 30 per cent, but not much scientific work has been done in this subject in Pakistan. The empirical knowledge about feeding acquired by the cultivators in the course of generations is not adequate. Farmers cannot mix the available feeds to form a balanced ration. In many cases there is lack of knowledge of nutrients in available feeds. As a result, these feeds are not utilised fully and part of them is wasted. In other cases necessary feeds are not available. The number of livestock is probably greater than existing feed resources in the country can support economically. The condition of insufficient feed is reflected in the condition of livestock which generally are under-nourished, under-sized, disease-infected and poor yielders.

169. Although no accurate data are available on annual losses from livestock diseases they are known to be very heavy. For example, in years of epidemics the annual mortality rate in sheep and cattle on the ranges has been estimated as 20 to 30 per cent and the annual loss from foot and mouth disease alone as about 5 million rupees. Parasitic diseases, though not often fatal, are responsible for huge losses in production. Certain areas of former Sind are badly affected by such diseases, especially liverfluke.

170. There are about 500 veterinary hospitals and dispensaries in the country, practically all provided and maintained by the State. The total number is small in relation to the area and the livestock population. Many farmers have to bring their sick animals from long distances to the dispensaries, and correspondingly veterinary staff have to travel long distances to reach sick animals. There is a shortage of medicines, and equipment, at the hospitals and dispensaries, especially those controlled by local bodies. The Animal Husbandry Departments contend that the hospitals are not operated efficiently, partly because of their dual control, by local bodies and the Government. The inadequate veterinary aid and the absence of quick transport are serious problems.

### Dairying

171. Average annual production of milk in the country has been estimated at about 6 million tons for the year 1948, mostly produced and consumed in the rural areas. The demand in the urban areas is met by production within towns and cities, supplemented with supplies purchased from nearby villages. The quality of much of the milk as it leaves the villages is fairly satisfactory, but before it reaches the ultimate consumers it is often adulterated and allowed to deteriorate in other ways. Milk produced in the towns is also far from satisfactory, it is produced in congested and insanitary pockets by *gujar* colonies in the heart of the cities, where animals are kept in unhygienic conditions with the result that the milk is generally contaminated. These colonies also create unhealthy conditions for the inhabitants.

### Marketing of livestock and livestock products

172. The problem of marketing livestock and livestock products has not, hitherto, received much attention. Unorganised methods of buying, assembling, processing, transport, selling and utilisation characterise livestock marketing. Most livestock products in the rural areas are sold locally to individuals engaged in the assembling and marketing of these products. Generally the marketable surplus of each individual cultivator is not large enough to justify his trip to the market town for its disposal. The middlemen are often in a position to charge an amount far in excess of the costs of their services. As a result prices received by cultivators are lower, and prices paid by consumers are higher, than they would be in an efficient market.

173. Livestock fairs, held at intervals in the towns, afford opportunities to the cultivators for the purchase and sale of their livestock, and there are regular livestock markets or '*piris*' in some of the towns. In the fairs a number of prevalent mal-practices need to be remedied to protect the interests of both sellers and buyers.

174. In big towns, slaughter-houses and meat markets are scattered over residential areas. This creates problems of control over sanitation and health measures, and handicaps efficient storage, preservation and fuller utilisation of animal by-products. Besides, the location of slaughter-houses in the midst of habitations creates unwholesome living conditions in the neighbourhood. Livestock produced for meat in the more distant areas are brought to the towns, slaughtered and sold to the public. This stock loses weight during the long journey because of inadequate fodder and watering arrangements while in transit. It has, for instance, been estimated by one authority that the loss in weight amounts to about 8 pounds per head of sheep when brought from Quetta to Karachi.

**Research**

175. Animal husbandry and dairy research was never outstanding in the sub-continent, and at partition all the central research institutes fell to India. In 1949 the Government of Pakistan established the Animal Husbandry Research Institute at Peshawar with a sub-station at Comilla. At present, these Institutes are operated by the Central Ministry of Agriculture, and are charged with research on problems of national importance, like the production of biological products (sera and vaccine), post-graduate training, and diagnostic services. So far, very little work has been done by these Institutes because of inadequate equipment and shortage of trained personnel. The average annual production of the biological products has been equal to nearly a million doses. Desiccated vaccine has been produced for use against rinderpest.

176. The Provincial Research Institute and the Poultry Vaccine Institute under the Director of Animal Husbandry, East Pakistan, manufacture sera and vaccine, and carry on diagnostic work. Their research has shown that almost all the domestic animals and poultry in East Pakistan carry parasites in their digestive tracts and that 75 per cent of cattle and 25 per cent of sheep are infested with liver-fluke. Research on animal nutrition on a very limited scale is proceeding in both Wings of the country. The College of Animal Husbandry at Lahore has, since partition, acquired additional laboratory facilities and personnel for conducting research on animal diseases, and some diseases of cattle and poultry hitherto unrecognised in this country have been identified.

## PROGRAMME FOR DEVELOPMENT OF ANIMAL HUSBANDRY AND DAIRYING

177. Extremely difficult problems must be overcome to develop the livestock industry. The usual problems of fodder shortage, heavy losses from diseases and parasites, and poor breeding stock present grave problems. Changes after 1947, in the composition of the population, increased the demand for livestock products. The position continues to be aggravated by the growth of population and income. In the face of these conditions it is difficult to protect the good breeding stock from being slaughtered for immediate consumption and thus reducing future output. Firm and consistent action by the Government on a wide front will be required merely to maintain present levels of production ; but the efforts must be expanded to yield increases in quantity and improvement in quality. The quality and inherent productivity of livestock need to be raised : bullocks should provide more draught, cows more milk and meat, sheep more wool and mutton, and poultry more eggs and meat. The quality and productivity of livestock can be improved through scientific methods of breeding, nutrition, disease control, and better marketing systems. Research is important as a basis for fruitful effort in all directions.

## Breeding

178. It takes many years to raise the inherent productivity of animals through breeding. The first phase of the programme to improve farm animals consists of selection and use of superior males in order to upgrade indigenous breeds. After the upgraded breed has been multiplied, it is necessary to increase the number of high-quality females and improve them further with still higher-quality males. This programme must be supported by a systematic elimination of scrub stock by slaughtering and castrating low quality stock.

179. A sound breeding programme must be carried out in stages. There is need for an intensive survey of existing breeds of livestock in the country ; information available at present includes only important breeds. We suggest that a committee composed of officials with a technical knowledge of livestock and leading private livestock breeders should be formed to determine the various breeds of livestock to be propagated in different parts of the country. The characteristics for each breed for milk, draught or dual purpose should be defined clearly. The breeds suggested by this committee should be selected for preservation and improvement. For cattle, a long-term programme is necessary for breeding out undesirable characteristics that are the result of inter-mixing of blood.

180. The Plan provides for strengthening and modernising present breeding farms and for setting up 16 new Government farms. Units of about 150 acres or more might be allotted to private breeders at a subsidised rate upto fifty per cent of the cost of the land. In exchange for this concession, each breeder should produce eight to ten bulls, of a specified breed, each year for a period of 15 to 20 years. The bulls produced would be bought by the Government at a controlled price for distribution to villages, preferably those covered by the Village AID programme, at attractive prices. After the contract period, the breeder should be free to breed and sell padigree bulls at the ruling market prices.

181. To speed up the production of improved cattle, provision is made in the Plan for two pilot schemes for artificial insemination, one each in East and West Pakistan. If the results of the pilot work are satisfactory, the programme for artificial insemination should be extended, if possible during the Plan period.

182. In East Pakistan cross-bred cattle have proved to be of good quality. Therefore, the possibilities of importing *Hariana* bulls from India should be explored, and the cross-breeding of local cattle with Red Sindhi, *Thari*, and *Bhagnari* (small size) breeds should be conducted at the cattle-breeding research stations. Provision for this programme has been made in the Plan. The possibility of improving cattle through selection from local breeds should be studied closely by the Provincial Government.

183. Buffaloes flourish especially in the swampy areas of East Pakistan where better fodder supplies exist. In order to improve the breeds, we recommend that a buffalo-breeding farm should be set up ; we have made provision for it in the Plan.

184. The purity of the present breeds of sheep which produce carpet wool should be maintained and their quality further improved. Pakistan at present imports fine wool and fine wool products costing about 14 million rupees of foreign exchange annually. We suggest that some of the indigenous breeds of sheep with fine wool should be developed. There is also the need for sheep breeds which produce more mutton per animal. To achieve these objectives, provision has been made for establishing five new sheep-breeding farms ; work on establishing two such farms at Jabua and Jhampir is already in progress. Provision for the completion of these schemes has been made in the Plan. Provision has also been made for goat breeding in the Chitral State for improving the quality and quantity of *Mohair* and milk of the indigenous breed by cross-breeding with Kashmiri buck. To improve quality and expand goat production in East Pakistan, the Plan includes a pilot

scheme for the Government to purchase goats from surplus areas for distribution in deficit areas. The offspring from the goats distributed will be recovered by the Government and used for further distribution.

185. In some parts of the country, horses and mules also play an important economic role. Provision has been made in the Plan to improve the quality of these animals, including two schemes in which horse and donkey stallions will be kept for breeding purposes at veterinary hospitals and other centres.

186. Many problems arise in getting good male animals into efficient use in the villages. Very few cultivators have enough female stock to utilise fully the capacity of a pure-bred male. A system has to be worked out by which such males would be used jointly by a number of cultivators who would see that the animals are given proper care. The villages must have some sort of organisation to discharge these vital functions—it may be a cooperative, the village council of elders, a *punchayat*, or some other local organisation. In each case a detailed procedure to ensure proper care of the animals should be worked out. We recommend that the Provincial Government should supply the first pure-bred male free to each village organisation, and thereafter each male be bought at the full cost. The village organisations should be encouraged to charge reasonable fees for the services, to pay for maintaining the animals in good health and for their replacement when necessary.

187. In poultry breeding, indigenous stock should be improved through cross-breeding with two well-known foreign breeds (White Leghorn and Rhode Island Red) that have been acclimatised to local conditions and have given satisfactory results. The programme for poultry provides for improving the existing Government farms wherever possible so as to increase production and to bring down costs. In addition, eight new farms are to be established during the Plan period. We recommend that in the distribution of hatching eggs and cockerels, preference should be given to suitable Village AID areas, but every effort should be made to produce enough eggs and birds also for the areas not under intensive development.

**Feeding**

188. Lack of feed is a major factor which limits livestock production. Feed production must be increased and must be utilised efficiently. Available fodder is very limited, especially in East Pakistan. Any increases in fodder acreage on cultivated lands, in most areas, would mean less land for other crops especially food grains. This would not be feasible with our food economy so delicately balanced. Production of fodder can be increased through larger yields per acre by the use of better seed, manures and fertilisers, and better cultural practices. The yields of fodder crops respond quickly and substantially to those practices, and production can be increased considerably in a few years if due attention is given to them. For example, the yield of lucerne can be doubled or even trebled if the crop is hoed and irrigated at the proper time. Attention should also be given to evolving a croppiing system which would ensure a supply of green fodder throughout the year. Funds for improving the acre-yields of fodder crops and for improving the productivity of the ranges are provided in the Plan in the respective sections.

189. There are possibilities of increasing the production of livestock and livestock products by combining available feeds into better balanced rations. In the agricultural extension and Village AID programme, special attention will be paid to the importance of livestock feeding. The Animal Husbandry Specialists assigned to each Village AID development area should explain to the villagers the principles of feeding, popularise balanced rations when determined for each region and help to educate farmers in methods of increasing the acre yields of fodder crops.

**Disease and pest control**

190. The quality and quantity of livestock and livestock products can be increased considerably if diseases and pests are reduced. More and better control facilities, especially preventive work both for contagious and non-contagious diseases, should be provided.

191. The prevention and eradication of various diseases call for the adoption of effective measures against the sources of infection, intermediate carriers and the afflicted animals, which become sources of infection and carriers themselves. These measures taken together would involve a heavy demand on resources, in terms of funds and personnel. In the Plan period the emphasis must be on preventing such diseases through vaccination and inoculation. Key veterinary hospitals could function as centres of protective activity. With additional staff and more liberal supplies of standardised sera and vaccine, mass inoculations can be carried out more systematically and periodically. An impediment to the campaign may be the lack of willing co-operation of farmers ; this can be overcome if work is initiated in the development areas under the Village AID programme, where the village workers and animal husbandry specialists working closely with cultivators can persuade farmers to undertake such work. If necessary, legislation can be promoted for compulsory mass inoculation against contagious diseases in times of emergency. The efficiency of the disease control staff needs to be improved by providing better transport, and refrigeration and cooling facilities. In view of the heavy toll taken by rinderpest, the Plan makes provision for its control and ultimate eradication in both Wings of the country. Provision has been made for a scheme to immunise sheep against anthrax in Quetta Division, and for carrying out experimental work on anthrax control in the Police Station Tejgaon, Dacca under the conditions found in East Pakistan.

192. The eradication of parasitic diseases must be tackled systematically. Personnel engaged in veterinary work should be given a refresher course, say, for a month, in diagnosis and mass treatment of parasitic diseases, including methods of dipping sheep. Necessary instruments, appliances, and portable sheep dips must be provided to carry out the campaign successfully. The village workers can provide effective assistance in carrying out these campaigns if the work is started and expanded with the Village AID programme. Provincial Governments should consider these possibilities and take necessary steps to develop a programme.

193. In the areas in former Sind, where livestock are badly affected by parasitic diseases particularly with liverfluke, a start was made towards eradication in 1953. This scheme has been included in the Plan along with a scheme for the control of fascioliasis in livestock to be carried out in Quetta Division.

194. There is considerable evidence to show that diseases are introduced by animals brought from adjoining countries. For this reason, a disease prevention campaign must include establishment of quarantine stations along the frontiers on all the main land routes entering the country. This will help in segregation, if necessary, of all the incoming livestock for an adequate length of time so that disease is manifested. We hope the Provincial Governments will give serious consideration to this point and prepare detailed programmes.

195. The Plan makes provision for veterinary services to remote and other inadequately-served areas by opening more hospitals and dispensaries. Ultimately the total number should be increased, so that the villagers will be able to get the services of these dispensaries or of mobile veterinary units without difficulty. Provision has been made in the Plan for setting up 52 new hospitals and dispensaries and over 20 mobile dispensaries which will be provided with the necessary staff, adequate equipment, medicines, sera and vaccines, for carrying out both curative and preventive measures. This programme should be closely linked with the Village AID programme. The village workers can be trained

in the control of the more common diseases and can in turn demonstrate these methods to the cultivators in the villages. To carry out disease control efficiently, the village workers need to have the services of the diagnostic laboratories available to them in the different regions. In time of need the workers should be able to get assistance from those laboratories and guidance from technical veterinary staff. This will require well-trained staff and specialised facilities. We recommend that this work should be started on a pilot project basis in conjunction with some of the better equipped veterinary hospitals. The provinces should give consideration to this suggestion and frame schemes to this effect. If the results achieved by the end of the Plan period are encouraging, this work should be expanded later. Problems too complicated for the diagnostic laboratories can be referred to the research institutes for investigation.

196. Each Provincial Government should appoint a committee to consider and recommend measures to ensure that the hospitals and dispensaries are run efficiently. We consider that transfer to the Government of institutions run by local bodies, which is strongly favoured by the administration, would be a retrograde step. They are national institutions, in the same way as those owned and run by the Government : the duty of the Government lies in helping the local bodies to run their institutions properly ; they should not suffer for want of medicines, equipment, or suitable buildings any more than institutions operated by the Government. Provision has been made in the Plan to strengthen these institutions.

**Dairying**

197. We recommend that steps should be taken to improve the supply of milk to cities and to remove, as far as possible, the livestock from within the cities to the outskirts. During the Plan period, milk supply schemes will be started on a pilot project basis in Dacca and Lahore. In the first phase of the Dacca milk supply scheme, milk will be assembled from the milk producers within the town and from the nearby villages, and processed, bottled and distributed by the centres set up by the Animal Husbandry Department. In Lahore, *gujar* colonies will be removed from within the city and established outside the town. The Government will buy all the milk produced by the *gowalas* at these colonies, and bottle the milk after clarifying, straining, cooling, and pasteurising it. The milk will then be distributed to registered milk depots and ultimately sold to consumers in sealed bottles to avoid adulteration.

198. The milk produced in cities or brought in from outside areas should be checked and tested for purity, and the offenders dealt with severely in order to reduce malpractices like adulteration with water. In some areas such arrangements already exist, but they need to be greatly strengthened to be fully effective.

199. The milk supply schemes for Lahore and Dacca will provide some abatement of the prevailing problems, but a permanent solution to the problem of a healthy, wholesome, and adequate milk supply within the means of the town dwellers will probably require a reorganisation of the dairy industry. It appears desirable that more of the milk should be produced by villagers near the cities. Small farmers could specialise in dairying, keeping half a dozen or more cows for which they could produce most of their own feed, and join together in co-operatives to assemble, transport, and perhaps to process the milk. A programme to bring about this kind of organisation will require a good deal of time and assistance from government agencies. We recommend that a start should be made as soon as possible, in chosen villages near large cities, with programmes planned and carried out by the Animal Husbandry, Co-operative and Agriculture Departments in co-operation with the Village AID programme. One scheme of this type, to be initiated in the former Punjab, is included in the Plan. The Provincial Governments should consider additional schemes.

200. More attention needs to be given to the 'salvage' of dry dairy animals that are inherently productive, but are sold for slaughter after their lactation period when their maintenance in towns becomes unprofitable. As a step in this direction, the Central Ministry of Agriculture has provisionally formulated a scheme for setting up a dry cattle farm near Karachi. Similarly the Lahore milk supply scheme, and a salvage farm about 20 miles from Dacca will provide safeguards against indiscriminate slaughter of good milk stock. These schemes are included in the Plan.

**Marketing livestock and livestock products**

201. A fair price to the producers can be ensured only if the efficiency of the marketing machinery is improved. One possibility of increasing efficiency would be to organise co-operatives for marketing purposes as proposed in the Chapter on Rural Credit.

202. Further developments in the grading of products are needed. The Co-operative and Marketing Department of the Central Ministry of Agriculture, in collaboration with the Provincial Governments, should investigate the possibilities of establishing grades for different commodities, especially those which are exported. The present wool-grading service is a step in the right direction. Efforts will be made to expand the wool-grading work by establishing sub-stations in each of the wool-producing areas in the country. Immediate action is also needed for other exportable products like hides and skins. The export of graded products will greatly facilitate the sale of commodities abroad. Grading operations should be planned, strengthened, and initiated where necessary for products, such as eggs, meat and *ghee*, which are consumed domestically in the urban markets. In order that the grading system may succeed, an extensive campaign will need to be carried out, both in the rural areas to create an understanding of the advantages and the procedures for grading products, and in urban areas to popularise the differences in value among grades.

203. Malpractices in the markets should be reduced in the fairs held in big towns. This can be done by applying the principles observed in the regulated markets for agricultural crops in the former Punjab, where traders are registered and their charges controlled by law.

204. To promote more sanitary conditions, supplies of better meat, and more efficient use of products, slaughter-houses should be removed to the outskirts of big towns and run on modern lines. For this purpose, schemes for constructing slaughter-houses at Lahore, Dacca, Chittagong and Karachi have been included in the Plan on experimental basis. They will provide the experience needed for rapid advance in future.

205. One way to reduce losses in the transport of livestock from areas of production to urban centres of consumption is to slaughter and dress the animals near the centre of production, chill the carcases by refrigeration, and transport the meat in refrigerated wagons. Dressing the meat in a meat-packing plant will reduce losses, raise the quality, make possible the economical utilisation of by-products, and provide a more remunerative and stable market for meat animals. A stable market would make possible great improvements in the marketing of livestock and livestock products. It may be that in the beginning the ordinary consumers may not like chilled meat. Until a preference for it is built up, the supplies of such meat can be utilised by the armed Forces. It is suggested that a meat-packing plant with refrigeration facilities should be installed at Quetta so that the animals can be slaughtered there, the meat chilled, transported to Karachi and other big towns, and disposed of as suggested above. Provisions are included in the Plan for this purpose. The West Pakistan Government in collaboration with the Central Government, should consider the formulation of a scheme for early implementation.

## Research

206. Before animal husbandry research can be improved or expanded significantly, several questions must be answered about the organisation and location of institutions for research. We recommend that the teaching and research in all the technical fields concerned with rural life should be brought together and, when appropriate, these institutions should be placed under a common administration. This would greatly facilitate the badly-needed coordination among the different fields of rural development, and would yield substantial benefit from the cross-fertilisation of ideas emerging from the different rural development fields. The major responsibility for conducting animal husbandry research must rest with the Provinces although the Central Government should provide a great deal of financial and other support. Provision has been made in the Plan for this purpose.

207. Major emphasis in the past has been placed on veterinary work. There is an acute need for greater emphasis on research in the other phases of livestock production. Genetics research should be expanded to develop breeds of cattle, sheep, horses and poultry suitable for different tracts and purposes. Feeding mixtures, which form balanced and economical rations, need to be devised and new feeds to supplement those now in use developed. The investigation of various contagious and parasitic diseases of domestic and farm animals, and the development of ways and means for their control and eradication must be continued and expanded. Foot-and-mouth disease, though not fatal, causes great economic losses in both Provinces. The yield of milch-cattle is adversely affected, and the efficiency of draught animals is seriously reduced. Although some methods of prevention have been tried in other countries, these have not been found practicable under the conditions obtaining in this country. At present some hygienic measures are being adopted only to ameliorate the condition of suffering animals. Research on diseases is being carried out only on a very small scale ; we recommend that it should be expanded at the existing research institutes in both Wings, in order to discover economic preventive measures. Investigation of the causes of livestock sterility, and the biological factors affecting the value of hides and skins, should be undertaken.

208. One of the most serious shortcomings in animal husbandry research is the lack of effort directed towards improving the production, marketing and consumption of dairy products. We recommend that such research be initiated immediately at the animal husbandry research institutes. Among the aspects that need immediate emphasis are :

(*a*) Feeding of dairy animals ;
(*b*) Genetic research and development of higher yielding cows ;
(*c*) Processing of dairy products ;
(*d*) Dairy bacteriology ;
(*e*) Improving farm methods of making cheese, butter and other dairy products; and
(*f*) Marketing of dairy products.

209. Statistical and economic analyses of data relating to livestock are lacking. A scheme for the study of livestock economics and statistics for East Pakistan has been included in the Plan; a similar scheme for the establishment of a Livestock Economics and Statistics Section at the College of Animal Husbandry, Lahore has also been included. Data on production and consumption of livestock and livestock products will be compiled, the results of current research work on animal husbandry will be analysed and correlated, and the seasonal incidence of diseases under different environments will be investigated.

210. The activities of the institutes of Peshawar and Comilla seem to be mostly concerned with the manufacture of sera and vaccines for use in disease-control efforts. The possibility of converting these institutes into manufacturing units and eventually into commercial producers is worth consideration

211. There is need for research to determine cheap mixtures of concentrates and roughages available to form balanced rations for the different regions of the country. This will include the determination of minerals and vitamins which, in the feeds, may vary from tract to tract. Well-planned research should be undertaken to determine the possibilities of utilising waste products such as stubbles, stover, corn-cobs, bagasse, and molasses for feeding livestock. The possibility of making some otherwise unpalatable acquatic plants, grasses, weeds, and other land plants palatable by different treatments, should be investigated. Some research along this line was done in pre-partition India; we suggest that this type of work be taken up along with nutritional research problems at the existing institutes and colleges. When flood waters in the *haor* areas of East Pakistan recede grasses grow abundantly. In some areas like Hakaloki *haors*, the grass is not being utilised fully and goes to waste. A pilot scheme for drying grass to supplement the fodder requirements of the Province has been included in the Plan.

212. Provision has been made in the Plan either to expand the nutrition work at Lyallpur or to start nutrition work at the College of Animal Husbandry, Lahore. The West Pakistan Government should decide which agency should be responsible for nutritional research, so that wasteful duplication is avoided. An important need is to find cheap mixtures of concentrates in various regions, which when combined with available roughages, will make a balanced ration. Combinations of cereals, pulses and oilseed cakes such as cotton seed, linseed, mustard, etc., be tested in feeding experiments.

213. Cheap poultry feeds also have to be developed. Their protein requirements could be met by utilising meat scraps, blood and other slaughter-house wastes, and fish-meal. Green feed requirements could be obtained from vegetables and green fodder crops.

214. In order to provide recreation and instruction to the people and facilities for students of zoology, the Plan provides for a Zoo near Dacca.

215. Table 10 shows expenditure on the development of animal husbandry during the Plan period.

TABLE 10

*Public expenditure on animal husbandry development*, 1955—60.

| | (Crores of rupees) |
|---|---|
| Disease control ... ... ... ... ... ... ... ... | 1·31 |
| Breeding ... ... ... ... ... ... ... ... ... | 3·18 |
| Education and Research ... ... ... ... ... ... ... | 2·62 |
| Dairying ... ... ... ... ... ... ... ... ... | 0·53 |
| Other schemes of animal husbandry ... ... ... ... ... | 1·68 |
| Total ... | 9·31 |

# RANGE MANAGEMENT

216. One of the potentially most valuable resources in West Pakistan is the pastoral range. Large areas of land in the Divisions of Dera Ismail Khan, Bahawalpur, Khairpur, Hyderabad, Quetta and Kalat and to some extent in the Divisions of Peshawar and Rawalpindi receive so little rainfall that cultivation of agronomic crops without artificial irrigation is impossible or is an uneconomic proposition. But most of this land can, under natural climatic conditions, produce forage which would support a livestock industry of substantial proportions.

## Present problems and conditions

217. Many of the range lands have been so over-grazed that the grasses and shrubs have not had a chance to restore themselves to their full potential. Under heavy grazing pressure, the palatable grasses and shrubs perished while the non-palatable species, left untouched, seeded freely and flourished. This damage, built up through years of exploitation, is conspicuous by an almost complete absence of nutritious forage, especially in easily accessible grazing areas. This situation has greatly affected the condition of the livestock that use the ranges, with the result that live-weight is considerably reduced, inferior calves are produced, susceptibility to disease has increased and the death rate has gone up. At present the grazing capacity of these lands is much below their inherent capacity but most of them can still restore themselves, although, in some cases, many years will be required to do so.

218. In East Pakistan, the problem of range development is not of any importance. Farming and forestry are the main land uses. Unlike dry West Pakistan, no part of East Pakistan depends entirely on the production of livestock.

219. The factor most responsible for the present state of the ranges in West Pakistan is the grazing of greater number of animals than they could support without considerable improvement in the forage. The ranges are used by pastoral communities living on or close to these range areas and by the *powindas* (Afghan nomads) who, with flocks of goats, sheep or camels, move into Pakistan early in winter and return to Afghanistan the following spring. It has been estimated that *powindas* bring with them nearly 2·1 million animals each year. They play a major role in causing deterioration to the ranges and also bring many debilitating diseases which are passed on to the native stock.

220. A second important factor that has contributed to the deterioration of ranges is the complete absence of a co-ordinated range development programme. At present the range responsibilities are scattered over several Government Departments without any attempt to integrate their activities through a co-ordinated plan of operations.

221. The pastoral communities generally lack a sound knowledge of grazing practices with the result that the ranges are not systematically grazed. Sometimes the grazing pattern is set by the availability of water alone. If the watering places are too far apart, the areas within easy reach from water are usually over-grazed and the areas away from the water sources are left unused even though the forage there may be nutritious and plentiful.

## Programme of action

222. We recommend that the reconniassance survey of the country proposed in connection with the soil survey should be employed to locate and record water points and ponds in all the uncultivated waste land receiving less than 20 inches of rainfall. During the first five years, priority in this survey programme should be given to the desert tract to the east of the Indus, preferably Tharparkar where temperatures are comparatively low and rainfall more favourable. The range areas in the north-eastern part of Quetta Division and in the Peshawar Division offer greater promise than other upland range areas.

The annual rainfall in Peshawar Division is over 20 inches and is well distributed over the year. The soil surveys in these areas should be accompanied by surveys for range forage and under-ground water.

223. One of the important considerations for range lands is the development of water for livestock and people. At present the main source of water for both man and beast is the natural precipitation collected generally in small shallow ponds. This source does not last long because of evaporation, and absorption in the soil. The development of a larger number of improved ponds suitably located will help considerably to distribute the grazing pressure evenly over the range areas. Where under-ground water is available the possibility of installing wind-mills should be explored. Provision is made in the Plan (in the section on Mechanisation) for experimentation with wind-mills. If any water in these areas is left after meeting the needs of livestock and humans, it should be diverted to production of fodder. Provision for these experiments has been made in the Plan.

224. To develop detailed plans for range development and to supervise the implementation of such plans, an effective organisation will be necessary. To ensure a high degree of co-ordination of all the departments concerned, we recommend that Provincial development boards should be formed along with district development boards wherever required in West Pakistan. The Provincial Board should include the heads of the Agriculture, Forestry, Animal Husbandry, Public Works, Soil Conservation (when set up), Village AID, Meteorology, and Co-operative Departments ; it should be assisted by a small permanent staff of one range management specialist, one animal husbandry expert, and one co-operative adviser.

225. The Provincial Board should consider policy issues on range management, suggest suitable legislation to the Government when required, give general guidance to the boards organised at district level, approve range working plans submitted by the District Range Boards, and allocate funds to them for implementation of approved working plans. These District Boards should be established in all important range areas on the same lines as the Provincial Boards. These boards should be presided over by Deputy Commissioners, and should include the district officers of the departments concerned and non-official representatives. Each District Range Board should have a Range Development Officer, drawn from the Forest of Animal Husbandry Department, with necessary training in range development. On the basis of the survey reports, the District Range Boards will prepare working plans to be submitted to the Provincial Board for approval.

226. As soon as a working plan is approved, it should be taken over by the relevant Government departments for implementing the portions for which they are respectively responsible. Its co-ordination should be effected by the Board through the district range development officers.

227. The working plans would form the sheet anchor of the range rehabilitation programme. We suggest that they should be made as specific as possible ; clear provisions should be made on the following vital aspects of range development :—

(*a*) Qualitative and quantitative improvement of forage and livestock;

(*b*) Provision of supplementary and emergency feed ;

(*c*) Development of watering places ;

(*d*) Disease prevention and control operations ;

(*e*) Current grazing patterns and changes recommended to adjust livestock and grazing of forage on ranges ;

(*f*) New transport facilities desired ; and

(*g*) Provision of marketing and credit facilities.

228. The District Range Board should try to associate the users of land in the range and livestock rehabilitation programme with the development of cottage industries based on livestock products. We presume that all re-seeding operations will be carried out by the communities with seed made available by the Forest Department. The Village AID staff should play a very active part in implementing plans in their areas. Skills which should be imparted to Village AID workers include demonstration of improved shearing and salting practices, disease prevention, wool grading, dyeing, knitting and rug making.

229. The annual influx of the *powindas* (nomads of Afghanistan) into Pakistan should be regulated in their own and in the broader interest of the country. Colonisation of *powindas* on uninhabited land and control of the movement of their animals within specific ranges should be tried during the Plan period. By reducing the pressure of grazing on these lands, the ranges can be renovated.

230. In addition to the natural ranges discussed above, the irrigated forest plantations have an appreciable grass cover in the early stages of growth, which can be improved considerably. At present this forage is not being utilised efficiently. We, therefore, recommend that a systematic programme for utilising this forage for livestock should be worked out for each of these plantations. It would be economical to raise firewood in combination with sheep farming. For example, we believe that at least 30 thousand sheep could be reared annually without any detriment to firewood production on the three lakh acres of irrigated plantations planned for the Indus basin. We suggest that experiments should be laid out immediately in the Sukkur Barrage and Thal plantations by the Forest Department in collaboration with the Animal Husbandry Department to investigate the possibilities of multiple use of irrigated forests. Grazing in the irrigated plantations is open only to animals owned by employees of the Forest Department. No fees are charged for this privilege. We suggest that to improve the quality of livestock, this privilege should be restricted to those employees only who keep good animals of a breed approved by the Animal Husbandry Department. If possible, animals should be branded for identification. Bulls and rams of improved quality should be kept at these plantations for stud.

231. Research is needed on various problems of the range development programme. The existing institutions carrying on research in agriculture and allied fields should conduct research on problems relating to their respective fields. Funds have been provided in the Plan to be placed at the disposal of the Provincial Range Development Board for carrying out the range development programme outlined above. Provisions have also been made to continue range and pasture improvement trials already under way in the upland districts (the Masalakh Project and experiments in Dera Ghazi Khan) of West Pakistan. Large-scale range re-seeding with exotic species should be undertaken only after the adaptation of the species under local conditions has been proved. The Plan provides for experiments in the use of fertilisers on ranges in Peshawar Division with rainfall of 20 inches or more a year.

232. Development of range lands is expected to improve the quality and quantity of livestock in West Pakistan. This improvement would not accrue to livestock producers unless the marketing of their stock is carried out efficiently and the necessary credit facilities are made available to them. We recommend that dual purpose co-operatives for credit and marketing should be established in areas selected for range development. The village workers in these areas should help in organising such societies ; special marketing officers should assist the producers in preparing and marketing range products and in purchasing the consumption requirements of the stock owners. This will help the livestock owners to get their requirements and sell their products at reasonable prices. There is also the need for exploring the possibilities of establishing a processing plant for livestock products in and around the range areas.

233. The provision made in the Plan for the development of range management amounts to 67 lakhs of rupees.

## FORESTRY

### Present conditions and problems

234. The area under forest management, at independence, was about 5 million acres: 3 million in East Pakistan and 2 million in West Pakistan. This forest area was about 3·2 per cent of the total land area of the country. On account of low rainfall, however, more than one third of the land classed as forest area is incapable of producing timber, and sizeable areas under timber are not managed scientifically because facilities for harvesting and extraction are not available and because the absence of roads makes many areas inaccessible. In some parts of the accessible areas, there have been no plans for comprehensive and systematic development of forests.

235. No accurate statistics of production and consumption of forest products are available. Rough estimates, however, show that the average annual production of wood and timber in the country is about 14 million cubic feet, which is much less than the current consumption. In 1954 the country imported timber (including tea chests) worth some 20 million rupees. If production is not increased considerably, the gap between domestic consumption and production will grow larger during the coming years, as an increasing population, rehabilitation of refugees, extensive colonisation projects, industrial development, and growing urbanisation increase the demand for forest products.

236. The Chittagong Hill Tracts in East Pakistan extend over 1,280 sq. miles and contain the largest untapped forest resource of Pakistan. The timber is exceptionally large, but the terrain is such that conventional methods of extraction are neither practical nor economic. A second area of East Pakistan which offers great possibilities for timber extraction is the Sunderbans, an area spread over 2,300 sq. miles of deltaic islands in the south-west part of the Province. A large part of this area is covered by salt water during high tide. Very small tracts of private forests are spread almost throughout East Pakistan. Some of these private forests contain *sal*, a very high quality valuable wood frequently used for making furniture and railway sleepers. An area of 280 sq. miles of private forests in East Pakistan has been brought under management of the Forest Department in accordance with the provisions of the East Bengal Private Forest Act.

237. In West Pakistan, timber land is restricted to a small region in the north-west, the rest of the Province being arid or semi-arid. Parts of the forest region are " reserved " and under the management of the Forest Department. A very large part of the timber tract is thinly populated, with little local demand for timber products, and almost no transport between them and the industrial and commercial centres.

238. The production of firewood is not adequate to meet the fuel needs of the people. A tentative estimate of the annual average production from government reserves and private forests is about 320,000 tons. To provide one seer per head per day (a rough estimate of household requirements) the urban population alone would require 2,177,000 tons. This deficit is met mainly by importing soft coke and coal and by using dung. Very little of the 320,000 tons of fuel wood finds its way into the rural areas. No estimate of the availability of firewood for rural areas can be made because of the complete absence of relevant data, but the burning of cow-dung on a large scale by the villagers is a clear indication that firewood supplies fall short of needs. Natural gas is a future possibility though not an important contributor as yet. One of the important sources of firewood has been forest produce on inundated lands in the Indus Basin. As a result of the construction of the new barrages at Kotri and Guddu, that source of firewood is likely to be reduced considerably. In East Pakistan the firewood shortage is not nearly as acute as it is in West Pakistan ; only in the north-western districts of the province is there an acute shortage which is indicated by the higher firewood prices.

239. Several attempts at afforestation, with varying degrees of success, have been initiated. Attempts to afforest by aerial sowings were unsuccessful in the Pabbi Hills of Lahore Division. That experiment showed the need for water holdings and seed bed preparation to induce germination and establishment of seedlings. Discouraging results obtained from afforestation under natural moisture conditions have diverted attention to raising forests, like agronomic crops, under irrigated conditions. An area of 2,500 acres has already been put under irrigated plantation in Thal where ten per cent of the total area has been set aside for forests.

240. In addition to timber and firewood, Pakistan forests contain a large number of herbs, shrubs and trees that yield valuable products such as tannin, oils, *Katha*, and medicinal extracts. At present little use is made of these species because efficient methods of extraction have not been developed.

## PLANS FOR DEVELOPMENT OF FOREST RESOURCES

### Timber extraction and utilisation

241. Because cheap transport is important for timber extraction, road construction is given special priority in forest areas. For East Pakistan, the forest programme provides for constructing about 280 miles of new roads and for repairing and widening about 170 miles of existing roads in private and government forests. The most important area where roads will be costructed and improved is the Chittagong Hill Tracts. In this area a pilot project to test methods of using modern extraction machinery with an annual capacity of 10,000 tons has already given encouraging results. On the strength of these results, it is now proposed that this programme should be further expanded to a capacity of 40,000 tons of timber per year, which is the estimated annual growth. Completion of the proposed hydro-electric dam across the Karnafuli River will facilitate timber extraction in at least two ways. First, the lake behind the dam will make it possible to move large quantities of logs from higher and inaccessible forest areas to the saw-mill quickly and cheaply; second, power will be available from the Karnafuli project for the saw-mill and auxiliary operations. After the completion of the dam the extraction target of 40,000 tons can be reached. To ensure effective utilisation of this produce, a saw-mill with a seasoning kiln has been provided in the programme. The sawn-wood obtained will be converted into either plywood or creosoted timber. Two creosoting plants have been provided for this purpose in the programme. We understand that two plywood units for tea chests are being set up by private enterprise.

242. In the southern area of Chittagong Hill Tracts (Sangoo, Range Kheong and Matamori Reserve), there are about 500 sq. miles of forest area with good prospects for extraction, but no systematic plan for their development has been made. As a first step, a programme for harvesting operations should be prepared. The execution of this scheme may require a saw-mill with a seasoning kiln. The preliminaries of such a scheme are expected to be completed by the East Pakistan Government by the end of 1956 and an annual extraction rate of 3,000 tons to be reached two or three years later.

243. In the Sunderbans, the two main species of trees grown are *Sundri* (hardwood) and *gewa* (softwood). A tentative estimate of the annual potential out-turn of *gewa* is about 50,000 tons of which 10,000 tons will be consumed by two match factories. About 30,000 tons will be consumed by a newsprint factory which will be installed at Khulna by the Pakistan Industries Development Corporation,—while the remaining 10,000 tons will be used to make packing cases. The production of *sundri* wood, estimated tentatively at about 2,00,000 tons annually, will be creosoted for poles and construction timber; a creosoting plant is to be established at Khulna for this purpose.

244. We strongly recommend that East Pakistan should continue the programme in which private forests are brought under government management in accordance with the East Bengal Private Forest Act, and that all private forests, where *sal* is grown, should be included in this programme. This is the most effective way at present to place the forests under scientific management and to increase timber output.

245. For West Pakistan the Plan makes provision for about 550 miles of new forest access roads and for the improvement of 250 miles of existing forest roads in the forest programme. We estimate that the proposed programme would facilitate the extraction of forest products extending over 1,000 square miles in West Pakistan.

246. The northern areas of West Pakistan including the states of Chitral, Dhir, Swat and Amb, contain sizeable tracts of coniferous forests. According to one estimate, Dhir State alone is capable of yielding 400,000 cubic feet of timber annually. As a first step in the development of a timber extraction programme in these regions, a forest organisation should be formed to survey the present forest resources, estimate growth rates, and prepare working plans. This organisation should also examine the possibility of setting up a plant for making composite wood from saw-mill refuse and inferior wood.

247. We recommend that until a forest organisation is set up, the Ministry of Frontier Regions and States should provide the West Pakistan forestry staff with facilities for the collection of data required for planning a systematic extraction and development programme. Provision for carrying out this work in undeveloped forest areas has been made in the Plan.

248. The prospects of obtaining poles from coniferous forests in West Pakistan are great. But most of the coniferous timber available from the North lacks durability without preservative treatment. For this reason a creosoting plant, to be installed at Havelian, has been provided in the programme. This plant will impregnate about 12,000 non-durable poles with chemical preservatives every year. Specifications of poles should be thoroughly studied by the Forest Department in consultation with the main user Departments and other organisations before orders for creosoting machinery are placed.

**Afforestation and regeneration of forests**

249. In East Pakistan, the Plan provides for rehabilitation of forest reserves already managed by the Forest Department. This programme includes qualitative improvement of current stands of trees and afforestation of bare areas. There are large areas of government waste lands suitable for growing timber. We recommend that such waste lands should receive priority in the afforestation programme. During the Plan period, 20,000 acres of government waste lands are to be afforested. Provisions have been made also for extensive planting of *sal*, preferably in private forests, and for the planting of trees along roads and railways.

250. Provision is made in the Plan for afforesting bare areas, improving growing trees, and for counter-erosion works in the reserve forests of West Pakistan. We recommend that areas in the timber region in the North-West of West Pakistan where annual rainfall is more than 30 inches, and where the terrain is not suitable for raising agricultural crops, should be used primarily for timber production. In addition, minimum standards should be laid down for the maintenance of waste or forest lands owned by individuals or local bodies. These standards should specify the minimum number of trees of prescribed girth to be grown and retained per acre and the minimum girth for cutting. Simultaneously the timber resources in the plains should be increased to meet rural needs for fire-wood, small-size timber, and raw materials for wood-using industries. Farm forestry—raising on the average four trees on every acre of arable land—has been introduced with success

in the Thal area. Educational campaigns should be carried out to introduce this system in the area covered by the Village AID programme. Shelter-belt planting *i.e.*, raising rows of trees and shrubs across the prevailing wind direction, should be adopted in all irrigation projects. In the plans for colonising new areas, land for shelter-belts should be provided in the layout of villages and farms. These shelter-belts would provide timber and fire-wood and reduce the effects of winds, which cause dust-storms and the depletion of soil moisture.

251. Since independence, avenues have been raised along 100 miles of roads in the former Punjab, and about 300 miles of canals in N.W.F.P. The Thal Development Authority has raised belts of trees 275 feet in width along 400 road miles. Programmes for raising tree avenues along railway lines, roads and canal bands should be expanded. Pakistan has about 58,000 and 7,000 miles respectively of roads and railways ; canal mileage is likely to be still larger. Tree avenues grown along these routes, in addition to providing fire-wood and timber, will offer sheds and reduce dust blown into railway coaches or water channels. We recommend that the Public Works Department and the Railways should immediately set up *Arboriculture* Divisions in their departments to plant trees in accordance with a working plan. Where this approach is not feasible the strips of idle land along the roads should be handed over to the Forest Department for raising trees. The urgency of the problem demands that all public and private institutions, public offices, residential quarters, factories, railway stations and hospitals should arrange to grow trees; in some cases tree planting should be made obligatory. The Provincial Forest Departments provide seedlings free of cost for such purposes. This programme might be more effective if 2 or 3 year-old seedlings rather than root-shoot stumps were distributed. The root-shoot stumps require greater skill in planting and their drab appearance evokes no lively interest in the mind of amateur planter. The forest programme provides for plantings along roads and canals.

252. In West Pakistan, there are good possibilities of raising trees, especially for firewood, in the upper regions of catchment areas (below the timber belt) where rainfall is adequate. In addition, afforestation is also possible in low hills if necessary precautions are taken to conserve natural moisture. Some of these low hill ranges are badly denuded as a result of over-grazing and excessive cutting of woody growth. This is particularly true of the Salt Range in Rawalpindi Division where run-off from exposed outcrops of salt is responsible for salination of arable areas at the foot of the Range. To stop this increasing menace, we recommend that the Salt Range be released from the rights of grazing and felling and the vegetation managed primarily for watershed values. This action would be facilitated if the communities affected by closure of the range were rehabilitated in new colonisation project areas. This would help to make the closure operations effective without distress to the people whose livelihood is, and been, closely linked with these hills.

253. An afforestation programme to seed about 27,000 acres annually along with water-conserving practices in the Pabbi Hills of Lahore Division is to be initiated in the Plan period and completed in about 20 years. Necessary provision has been made in the Plan for continuing and expanding this programme.

254. In the Thal, about 100,000 acres will be stocked with firewood species in compact plantations, with another 50,000 acres in *chak* (village) plantations of 50 acres per village and in shelter belts along the irrigation channels. An area of about 300,000 acres in the Indus basin (in Kotri, Guddu and Sukkur Barrages) has been earmarked for irrigated forest plantations on land otherwise uneconomic for growing agronomic crops. Plans call for the completion of the plantation work in 15 to 20 years and provision has been made for them in the Plan. Allocations for afforestation in Thal are included in the Thal project under "Colonization".

255. There are good prospects for the development of fire-wood crops on village waste lands. These waste lands are denuded of tree growth as a result of indiscriminate felling and grazing in the past. The only exceptions to this rule are a few scattered areas which, by agreements between the Forest Department and the owners, have been brought under the temporary management of the department. All these areas are protected, developed, and afforested by the Forest Department at public expense, but the forestry products from these areas go to the owners. On the expiry of the agreed period (rarely exceeding 25 years), the areas revert to the owners without any obligation to protect the plantation or other works of improvement carried out by the Forest Department. Any afforestation programme developed on these lines for extensive areas of waste lands is apt to be prohibitive in cost. We think that the co-operation of the rural communities who use these waste lands should be obtained in the form of free labour for planting and maintenance to make afforestation economically feasible. We recommend that pilot afforestation projects should be started through district officers in co-operation with local bodies. There are several agencies like *panchayats*, village co-operatives, Union Boards and Crescent Clubs through which liaison should be established. Detailed progress reports of the pilot projects should be prepared and published annually. The Forest Department proposes to develop projects in village areas now under their management. Similar experimental projects on wastelands, which belong to individuals or communities and which are not controlled by the Forest Department, should be undertaken by the Forest Department or the Soil Conservation Organisation. Provision has been made in the Plan for carrying out the programme of afforestation on waste lands.

256. As noted above, a large amount of foregin exchange is being spent each year to import timber especially for meeting the demand of the Government Departments. This is partly because these Departments continue to demand timber according to specifications formulated before partition when supplies of indigenous *sal* and *teak* were available from the present India. We believe this drain on foreign exchange could be substantially reduced if the specifications were modified to include suitable substitutes available from amongst indigenous timbers. We recommend that a committee should be set up consisting of the Inspector-General of Forests, with representatives of the Railways, Port Trust, Provincial Public Works Departments, Posts and Telegraphs Departments, and the Pakistan Forest Research Institute, to review the timber specifications of the various Government Departments.

### Development of other forest products

257. In the sub-tropical climate of East Pakistan, medicinal plants, especially *Rauwolfia serpentina*, offer an opportunity for development to meet both local and export demand, and the East Pakistan Government propose to develop their cultivation. Experiments on rubber cultivation have been in hand since 1952 in East Pakistan; the results of these experiments will be available in 1959. The progress of these experiments has, so far, been reported to be satisfactory. An expert on rubber cultivation should, however, be invited to Pakistan to advise if the results of the experiments already available justify an expanded programme for rubber cultivation. Subject to the recommendation of the expert, funds have been tentatively provided in the programme for the expansion of rubber cultivation. In addition, provision has been made for establishing two sanctuaries for preservation of game with a nucleus staff to train the personnel employed in the Forest Department in the methods of game preservation.

258. Forests play a significant role, directly or indirectly, in supplying materials for a number of industries like sports goods, furniture, lac, sericulture, matches, paper, pulp and tanning. The kinds of timber required for these industries have been given preference in all the afforestation programmes; walnut, willow and poplar will be grown in high

hill areas, *tut* (mulberry) and *shisham* in Lahore, Rawalpindi, Multan and Bahawalpur Divisions, *simbal* in Quetta, Hyderabad, and Khairpur Divisions. Specific schemes in the Plan provide for the production of *tut* nurseries for sericulture and production of brood lac in Rajshahi Division, extraction and purification of honey which is available in large quantities in Sunderbans forests of East Pakistan. No firm estimates are available of the quantities of timber and other forest products consumed by various industries. We recommend that the Pakistan Forest Research Institute should collect the relevant statistics from the trade and maintain them up-to-date.

### Forestry research

259. Fundamental forest research and education is largely the responsibility of the Central Government, but some regional research of an applied nature on dry afforestation techniques, the determination of optimum water requirements, and the introduction of exotic species has, however, been conducted by the Provinces. Research in East Pakistan was concentrated on the introduction of economic species, specially rubber, cinchona, wattles, *tendu* (bidi leaf), *divi-divi* (tanning material) and pepper. It has been found that *simbal*, bat-willow and paper-mulberry could be raised successfully in the former Punjab, and experiments with rose wood, *simbal* and *khair* in the former Sind have given good results. Dry land afforestation experiments have been carried out all over West Pakistan to evolve economical methods of establishing firewood crops under conditions of natural precipitation.

260. The main centre of research on forests and forestry products in Pakistan is the Pakistan Forest Research Institute at present located at Abbottabad but to be shifted to Peshawar shortly. Since its inception in 1947, this Institute has been seriously handicapped for want of staff, equipment and buildings; the Agriculture Ministry has now proposed its re-organisation and expansion. Research at the Institute will serve the whole country and cover almost all phases of forestry including silviculture, forest botany, forest entomology, forest chemistry, forest utilisation, and the botanical survey of medicinal plants. The silvicultural research programme will include thorough investigations of the techniques of dry afforestation and the utilisation section will have a sub-section on forest economics and statistics. Special emphasis will be laid on research in the utilisation of inferior woods, large quantities of which are available but not used. In the chemical field investigations will be carried out specially to study the chemical properties of inferior woods and their application in the manufacture of pulp, paper, and plastic and composite wood. Another salient feature of the research programme will be investigations of methods for the cheap extraction and refining of products of economic use from forest crops. Special attention will be paid to the control of forest pests which do immense damage to standing trees and harvested wood. Provision for research on these pests has been made in the Plan. Other research schemes include a detailed survey and study of the insect pests of forests of East Pakistan, manufacture of *katha* and tannin, and extraction and purification of essential vegetable oils and active chemical agents from medicinal herbs. Provision has been made in the programme for completion of the buildings of the college and research institute at Peshawar, the purchase of equipment, the additional staff required after reorgainsation and for the expansion of research and for forest education.

261. At Chittagong a Forest Research Laboratory has been set up and is expected to start functioning during the Plan period. Research will mainly be directed towards finding new and more economical uses for the durable timbers of East Pakistan. For a large number of semi-durable and non-durable timbers only partially utilised at present, cheap preservatives will be developed. In addition, chemical processes will be evolved to utilise softwoods by pulping or conversion into composite wood products, which could provide a cheap material for furniture and packages.

262. Apart from the research being done under the supervision of the Central Ministry of Agriculture, there are small organisations in both Provinces for research on local forestry problems. Provision has been made in the Plan to enable these organisations to continue the present schemes and undertake new ones like breeding forest-hardy *babul*, investigating the optimum water requirements of irrigated forest crops, evolving techniques for dry afforestation, pasture improvement and the introduction of exotic species of economic value.

263. The capacity of the East Pakistan Forest Institute for the training of the subordinate staff will be extended during the Plan period to meet the increasing demand for such personnel. At present the Institute provides training facilities for 15 students every year. Provision has been made for buildings and for teaching equipment so that by March 1957 it should be possible to train 30 students a year. In addition, a botanical garden at Dacca is contemplated for the benefit of research workers as well as for public recreation and instruction.

264. There are a number of possibilites for the development of forests which require further testing or experimentation before large-scale development is initiated. During the summer months, huge quantities of the Indus flood waters go out to the sea. Substantial quantities of water during the peak months might be diverted to areas unfit for agronomic crops (like parts of Thal and Cholistan) but suitable for raising firewood and small timber. Experiments conducted in Bahawalpur to raise a plantation by flood water have been successful. We suggest that the West Pakistan Government should explore further such possibilities of afforestation; provision has been made in the Plan for these experimental projects. If successful, they could be extended over a large area. Another source that should be developed for firewood is the large acreage considered unsuitable for agronomic crops on account of water-logging. Experiments should be laid out to find suitable trees of economic value which could be grown in these areas; the West Pakistan Government should prepare and execute a scheme for this purpose. There is also the possibility of afforestation of the coastal strip especially in the Sind estuary, Tidal Belt and Lasbella swamps. Woods here can yield firewood as well as leaves for fodder. Research in this problem needs to be started immediately. We suggest that the West Pakistan Govenment should also develop research which in other countries like Israel, Africa and Syria has shown that vast arid tracts can be made productive by suitable techniques· Experimental work on similar lines should be initiated to discover economical means of developing the arid tracts of Pakistan.

265. The classification of state forests, as now adopted, comprise lands that are under timber, firewood and grass. The division of these forests into categories showing their utility and the objects of the forests is lacking. Still less is known of private forests. There is a need for reclassification of all these areas for full appreciation of the nature of our forest resources and their utilisation. We recommend that all the forest areas, whether private or state-owned, should be classified on the basis of their economic possibilities as between "protective" and "productive" forests, the latter being subdivided between " timber ", " firewood " and "pastures".

266. We estimate public development expenditure on forestry during the Plan period as follows:

| | Crores of rupees |
|---|---|
| Extraction and utilisation ... ... ... ... ... ... ... | 4·04 |
| Afforestation and regeneration ... ... ... ... ... ... ... | 3·13 |
| Research and education ... ... ... ... ... ... ... | 2·51 |
| Minor forest products ... ... ... ... ... ... ... ... | 0·39 |
| Total ... | 10·07 |

## SOIL CONSERVATION

### Nature of the problems and the need for action

267. Soil forms the physical basis for the production of crops, livestock and forestry products, and acts as a storehouse for water. The soils, especially in many parts of West Pakistan are subject to rapid erosion by water and wind. These losses are heavy, though their exact magnitude is not known.

268. When rains fall or snows melt, an appreciable quantity of water infiltrates into the soil and surplus water flows towards drainage channels. This downward movement or run-off of water is greatly retarded when there is a vegetative covering on the soil surface; the herbs, shrubs and trees prevent the water from gaining speed and their elaborate network of roots binds soil against disintegration and erosion. When land is covered with vegetation, floods are likely to be less severe and to occur less frequently, streams are more likely to be perennial and soils more stable. In some areas forests have been cleared for cultivation of unstable slopes, and grasslands have been grazed bare. Whether the land is under grazing or cultivation, the top soil, when deprived of protective cover and soil-binding roots, is unable to hold against the abrasive action of speeding water. Smooth slopes subjected to surface-washing develop rills which deepen into gullies. In the course of time the productivity of such lands is severely reduced.

269. Wind erosion reduces the productivity of land by blowing the finer particles away, leaving behind heavy sands. In wind eroded areas, life is made extremely unpleasant and unhealthy for man and his animals during the storms. In extreme cases the affected areas are covered with crescent-shaped accumulations of sterile sand which keep on the move and bury habitations, crops, and fill up ponds, irrigation channels and canals.

270. In West Pakistan, water and wind erosion are prevalent in varying degrees over extensive areas. Restoration of vegetation on these areas is imperative to reverse the processes of erosion and to arrest their further advance on to unaffected areas. But establishing vegetation in West Pakistan, a major part of which is dry, is difficult and often impossible without supplementary aids for conserving moisture.

271. In East Pakistan, wind erosion is not a serious problem, and water erosion is restricted to the Chittagong Hill Tracts, where cultivators some times follow the practice of clearing forest growth from hillsides, cultivating the land until the top soil is eroded and then abandoning the fields. Rainfall is favourable for forest growth; after cultivation is stopped, natural vegetative growth soon covers the fields and reduces erosion.

272. Positive efforts by the Government and by individual cultivators will be necessary to prevent the rapid loss of valuable lands. For several reasons the Government must play a major part in any soil conservation programme, and assume the responsibility for evolving the best techniques of conservation and for making cultivators aware of the benefits to be gained. There is a need for improvement in known, and development of new, soil conservation techniques which are adapted to the particular conditions of the country. Conservation measures must be employed on watershed basis or by the entire community involved, in order that such measures may be effective. The Government must increase research activity and provide the leadership for developing the necessary organisations of cultivators and the necessary plans for conservation. In many cases the adoption of soil conservation practices may result in a decrease in the immediate net income of cultivators although in the longer run production would increase. In the face of such conditions, government action is necessary to overcome the inconsistency between the actions

likely to be taken by individuals in their immediate interest and the longer-run public interest. Finally, the Government must assume responsibility for application of soil conservation measures on public lands.

273. In West Pakistan various government agencies, especially the Forest Department, have attempted to check erosion in different ways. The various methods tried included reclamation of gullied agricultural land, terracing (*watbandi*), check-damming, river training and afforestation. These efforts were largely concentrated in the northern upland districts, especially in the Rawalpindi Division, where water erosion presents a serious problem. Also, the Forest Department has extended soil conservation activities to the Thal area where elaborate wind-breaks and shelter—belts are being raised to reduce wind erosion. Recently a soil conservation project was started on agricultural lands in the northern upland districts of Rawalpindi Division to evolve indigenous techniques for conserving soil and water. The soil conservation practices tried by the Forest Departments have given some satisfactory results when carried out locally but have not achieved much success on larger areas. What had been successful in a technical sense was not practicable or economical for the cultivators. In addition, there was no co-ordinated plan developed on a water-shed basis with integrated soil conservation programmes on range, farm, and forest. A pilot soil conservation project is now under way at five centres in the northern upland districts of West Pakistan. In that project, selected soil conservation measures developed in foreign countries are to be tested to evolve techniques suited to local conditions. In 1951, the Central Government created the Soil Conservation Organisation for a period of five years. The main task of the organisation is to conduct research on the fundamentals of erosion control problems and to recommend erosion control measures. In addition, this organisation is supposed to conduct reconnaissance soil surveys and land capability classifications.

**Programme of Action**

274. The problem of soil conservation needs to be tackled from two angles. The first and possibly the most important problem at present is the need for research to find methods and techniques which are effective, economical and within the means of cultivators. The second problem is to get the results of research into practice on the lands. As a basis for research and for the development of conservation plans, a programme of soil survey and land capability classification is included in the programme for agriculture. The research should move in two directions: (a) to discover measures to prevent erosion, and (b) to evolve techniques for reclaiming eroded lands (forests, range and cultivated land) under different climatic conditions.

275. Soil conservation is by and large a problem of West Pakistan; for this reason it is recommended that the Central Soil Conservation Organisation should be transferred to the West Pakistan Government, and there remain a semi-autonomous body. Further, in view of the importance of the long-term research and development we recommend that the Soil Conservation Organisation should be given permanent status. Provision has been made in the Plan for the continuation of this organisation until 1960.

276. The pilot soil conservation project now under way at five centres in the northern upland districts should be continued, and provision has accordingly been made in the Plan. When the results of this pilot project are available and found satisfactory, the work should be extended as rapidly as possible to the other eroded areas.

277. Provision has been made in the Plan for a soil conservation-*cum*-afforestation pilot project sponsored by the Ministry of Kashmir Affairs. There the plan of operations will include construction of check dams, afforestation, hill torrent control and terracing on agricultural lands.

278. Immediate action should be taken to extend the results of research, as rapidly as they are developed, systematically to cultivated and waste lands. Because water erosion is linked with run-off, a water-shed is a natural unit for planning conservation systems. Soil conservation measures, as a rule, should proceed systematically from top to bottom of the water-shed. In such a programme the ownership pattern in the water-sheds will pose serious problems but these must be overcome ; full co-ordination and co-operation among users of lands in any integrated conservation plan is essential for success.

279. To develop co-ordinated conservation plans and to provide effective leadership in their application, an organisation is necessary. We recommend that an advisory body for soil conservation should be set up as soon as possible in West Pakistan; this body should include the Secretary for Agriculture to West Pakistan Government, Heads of the Provincial Government Departments concerned and the Soil Conservation Adviser, who heads the Soil Conservation Organisation. The main terms of reference of this body should be to lay down general policies, and approve working plans prepared by District Soil Conservation Committees organised at the district level; the District Soil Conservation Committee would have representatives on it comparable to those on the Provincial body, presided over by the Deputy Commissioner. The Provincial Committee should lay down a pattern for the District Committees to prepare plans on a water-shed basis; after approval of the plan the District Committees would act as executing agencies. The various Departments represented on the District Committee would implement parts of the plan pertaining to their fields. A written plan is considered essential in order that the various district agencies, the individuals and the village communities involved will understand their responsibilities clearly and fully.

280. The soil conservation working plan will prescribe clearly the correct land use for various types of land and the water holding or water spreading practices considered essential for most economic and permanent use of the land. The district soil conservation specialists will co-ordinate the activities of the various operation units in the implementation of the working plan.

281. Active co-operation of the communities and individuals who own and farm the lands must be enlisted in the execution of conservation plans ; larger and quicker results are likely to be achieved thus than by using official agencies alone. The cost will also be reduced materially because voluntary labour can be provided by the owners or users of the land.

282. On private lands, soil conservation measures will have to be taken by land owners themselves, under the leadership to be provided by the soil conservation specialists at the district level. The Government should limit itself to the technical assistance offered through the village level workers, who should be given a short course of training in the techniques and methods of soil conservation by the staff of the Central Soil Conservation Organisation. Material help to co-operating farmers will be allocated by the District Soil Conservation Committees and distributed through the Village AID development officers from funds provided for this purpose in the Village AID programme. If arable lands are not developed by owners, the District Soil Conservation Committee should be authorised to carry out the conservation work in accordance with the approved working plan. The money thus spent could be recovered from the owners as arrears of land revenue. In the areas not yet covered by the Village AID programme, the Departments of Agriculture and Forestry should continue to exercise responsibility in their respective spheres and carry out the programme according to written plans as they are developed.

283. The district soil conservation specialists attached to the Deputy Commissioners will need special training. A training programme should be worked out by the

Agricultural Education Council (proposed below paragraph-350) with the aid of the Provincial Soil Conservation Committee. The course of training should be arranged at one or more of the existing Agricultural Institutions.

284. The Plan provides 94 lakh rupees for soil conservation during 1955—60.

## SOIL SURVEY

285. Systematic soil surveys based on uniform techniques are necessary for obtaining the fundamental soil information required to plan sound agricultural programmes, to develop combined land and water use programmes, and to devise equitable agricultural taxation. Soil surveys show the physical and chemical characteristics of the soils, their potential productivity and suitability for different crops, fertiliser needs and methods of cultivation requirements.

286. In the past only a limited amount of soil survey work was done, by several agencies including Provincial Departments of Agriculture and Revenue, the Ministry of Agriculture, and the Public Works Department. In East Pakistan, little systematic work was done before partition except an intensive soil classification survey of one district, the results of which have been published recently ; this work still continues. In 1953, nearly all of West Pakistan was photographed from the air. This was followed by a reconnaissance field survey for land classification carried out in close association with the Central Soil Conservation Organisation of the Ministry of Agriculture. In former Sind, part of the land has been classified according to productivity and revenue earning capacity ; in former Punjab soil surveys have been conducted in part of the irrigated area. Practically the whole of East Pakistan has also been aerially photographed and a detailed soil survey in the Ganges-Kobadak area is under way.

287. Each of the organisations engaged in soil survey work has followed different techniques and standards for soil classification ; there is a great need for co-ordination to ensure uniformity and comparability of results. By following a uniform system of soil classification, the nature of any particular soil can be specified and compared with any other soil, and the soil maps prepared for any part of the country can be accurately interpreted by surveyors working in other regions of the country. We, therefore, recommend that standard specifications for the execution of all types of soil, and land classification surveys and analysis should be evolved for country-wide use, whatever the agency. For this purpose, we propose the establishment of an expert committee by the Ministry of Agriculture, or by the proposed Ministry of Natural Resources. To lay down such standard specifications and techniques of soil classification, this committee should have soil specialists from the two Wings and representatives from the agencies likely to use the results of these classifications.

288. We recommend that the agency for executing the detailed soil surveys and land classifications should be the Soil Survey Sections already established or to be established in the Provincial Departments of Agriculture. These Sections should be closely affiliated with the appropriate sections of the agricultural colleges. The Plan provides for basic soil survey work. Agencies requiring special purpose surveys should approach the Soil Survey Sections to undertake needed surveys.

289. Soil Survey Sections should give first priority to areas to be included in new irrigation projects, such as the Lower Sind, Guddu, Taunsa, and the Ganges-Kobadak schemes. In new areas, soil surveys should be among the first actions taken so that the valuable information provided by them can be used by all concerned, including the irrigation engineers responsible for the planning of irrigation projects most effectively. A total provision of 13 lakh rupees is made in the Plan for Soil Surveys.

## COLONISATION

290. A number of irrigation projects are under way and more are contemplated during the Plan period. These projects will increase by 1960 the cropped area by 2·8 million acres. Of this, about 1·6 million acres, most of which will be benefited either by tubewell projects or by minor irrigation and reclamation schemes, are in areas already colonised. The remaining 1·2 million acres are compact blocks in major irrigation projects as shown in Table 11, and will need special facilities for rapid development.

### TABLE 11

*Additional area to be cropped in major irrigation project areas*

| Project | Additional area to be cropped | |
|---|---|---|
| | When the Projects are completed | During the Plan period |
| | Thousand acres | |
| *West Pakistan* : | | |
| Thal | 1,167 | 270 |
| Taunsa | 710 | 43 |
| Lower Sind | 1,413 | 549 |
| Gudu | 907 | ... |
| Makhi Dhand | 150 | 18 |
| Kurrum Garhi | 150 | 120 |
| Warsak | 120 | 10 |
| Nari Bolan | 24 | 24 |
| Total West Pakistan : | 4,641 | 1,034 |
| *East Pakistan* : | | |
| Ganges-Kobadak | 259 | 140 |
| Total Pakistan : | 4,900 | 1,174 |

291. The actual area which will need colonisation during the Plan period will be more than the cropped areas shown in Table 11; plans for colonisation need to be developed long before settlement is to begin. Thus the plans for colonisation must be laid during the Plan period for much of those areas in which the irrigation works will not be completed during the Plan period. In addition, during the first few years after settlement, it will not be possible to get all of the crop-land into production. Some of the areas which are now irrigated by inundation canals will receive weir-controlled and regulated supplies immediately after 1960; these areas will need roads, land survey, and drinking water supplies during the Plan period. Provision for this colonisation work is included in the Plan.

292. In the past the policy of the Government in developing the vast areas in the canal colonies of West Pakistan, other than the Thal Project, was to appoint a Colonisation Officer generally of the rank of Deputy Commissioner. This officer was appointed to work in the districts where development was needed ; he was charged with the duty of settling colonists in his areas. In the areas to which they were posted, the Colonisation Officers relieved the Deputy Commissioners of revenue work, and were given the special powers of selecting the colonists, allocating land to them and seeing that the land was properly developed and used. In the earlier stages of development land was given without payment to the settlers ; more recently it has been sold. The Government extended little, if any, help to the colonists ; as a result, public outlay on colonisation was low but the colonisation work proceeded slowly. Moreover, in this system, the colonisation officers supervised only the settling operations, while the other developmental activities were left to the particular Departments concerned. Consequently, the different stages of development were not co-ordinated, and development was not accomplished systematically.

293. The urgent need of the day is to bring the new lands where irrigation and drainage facilities are made available into production as rapidly as possible ; to this end no field of development must be permitted to lag behind to limit the pace of overall development. It was for this reason that a semi-autonomous body, the Thal Development Authority, was set up in 1949 by the former Punjab Government. It was thought that the colonists, if left to their own resources, would take about 18 years to bring the whole Thal project area into production, while the Authority was expected to complete this job within about 6 years. To speed up the work, the Authority was empowered to buy tractors and other farming machinery, to acquire land, break up, level, and distribute it amongst the settlers, to construct village link roads, erect shelters, and build houses for the colonists. Considerable progress was made by the Authority with works other than colonisation, but land has not been brought into production as quickly as was expected. It had been calculated that by 1954-55 about one million acres would be brought under crops, compared with about 400 thousand acres if the old slow system was followed. Actually, however, only about 400 thousand acres were brought under crops by 1954-55. A committee set up by the former Punjab Government is at present engaged in an evaluation of the work done by this Authority. Whatever the conclusion of this committee, we have no doubt that semi-autonomous authorities for the colonisation of large new areas provide the only answer to the problem of rapid coo-rdinated development. Multi-lateral development needed in such cases demands co-ordination of a high degree not attainable in ordinary operations on a departmental basis. The condition is that policies and programmes must be laid down by the Government and the progress should be watched concurrently. Such authorities or agencies for execution should have no power of formulating policies and programmes. The Government exercise effective control through budget allotments and there is no reason why actual execution should be otherwise than as desired by them.

294. We recommend that in East Pakistan the Ganges-Kobadak and the Teesta Barrage areas should be studied to determine how much, if any, of these areas will require colonisation. Then the question of the appropriate type of organisation for development should be decided. In the meantime the agriculture organisation in the Ganges-Kobadak area should be strengthened. The Central Ministry of Agriculture should assist the Provincial Governments by providing information and advice, and by helping them to obtain necessary resources. In West Pakistan a semi-autonomous Development Authority directly responsible to the Board of Revenue should be set up for each of the major projects in the Province. The Board of Revenue, which will have a direct access to the Chief Minister, should be assisted by an advisory committee representing the heads of all the departments concerned. The Development Authority should execute the colonisation programme in accordance with the policies and programmes laid down by the Provincial Government.

295. We recommend that each Development Authority should have three departments, (a) research, (b) plans and operations, and (c) administration.

296. The research department should be set up as soon as Planning of any sort is commenced, probably long before the actual settlement is started and the Authority is established. The function of the research department would be to determine what specific research is needed, find the agencies to do this research, such as colleges, universities, and Government agencies, and see that it was carried out and the results made available with a minimum of delay. In addition, the research department would assemble any relevant information already available and advise on plans and operations. It should be staffed with a director and at least one fully trained specialist in each major field such as settlement, crop production, animal husbandry, forestry, irrigation, farm management, marketing, credit and cottage industries. When it is possible to have the research actually conducted by colleges, universities and other agencies on a contract basis, the research staff of the development authority could be kept to a small number ; till then it would be necessary to keep the staff at a level sufficient to conduct its own research.

297. The Plans and Operations Departments should have at least four major sections: (a) settlement, (b) construction, (c) extension, and (d) credit. As soon as sufficient information is available from existing knowledge and research, plans for development should be prepared. These plans should show the following : how the settlers would be selected, in what numbers, and from what sources ; size of farms ; recommended farm production plans; arrangements and facilities for purchasing supplies and selling products; credit plan and facilities; designs for roads, houses and community services; arrangements for water supply and use; and provisions for health, education, and extension services.

298. When the plans of the Development Authority were completed, they should be submitted to the Board of Revenue for approval by the Provincial Governments; when approved they would be ready for implementation. The Provincial Government should review periodically the progress of each Development authority, see that the work is being executed according to the plans, and take such action as necessary to ensure rapid progress.

299. Implementation of the Plan would be under the immediate supervision of the Plans and Operations Department of the development authority. The Settlement Operations Section would select the colonists and arrange to provide the land. The Construction Operations Section would lay out the farm units and villages, and construct roads and provide simple marketing facilities. It would help the colonists in the construction of their houses, storage space for the produce and buildings for the animals, and would arrange to supply materials needed. Most of the cultivation work would be done by the colonists, but in some areas colonists would need help in the initial breaking up and reclamation of land. The Construction Operation Section would provide this help wherever necessary. The Extension and Credit Operations Section would be responsible for seeing that necessary extension and credit services were provided.

300. We recommend that the extension services, including all forms of technical assistance, should be provided free to the settlers, but the cost of resources provided in the forms of land, non-available materials and funds used to buy such items as farm animals and implements, food for the family, feed for the livestock, and the cost of land reclamation should be recovered in instalments. The highways should be constructed by the Authority, while village roads should be constructed as in the Village Aid programme with voluntary labour provided by the colonists.

301. The criterion for the division of work between the cultivator and the Authority is a simple one—the colonist should do all the cultivation and construction work that he is considered able to accomplish with some assistance, while the authority should be responsible for the rest. It should be the Authority's policy to employ colonists whenever possible, with some of the wages paid, if possible, in scrip that could be used by the colonists to reduce their indebtedness.

302. It is difficult to estimate precisely the expenditure for various areas to be colonised, because the basic data are lacking. We recommend that a colonisation committee should be set up immediately to prepare the necessary details. All Departments concerned with colonisation, such as Settlement, Communication and Works, Development and Irrigation, Food and Agriculture, Education, Health, and the Village AID Administration should be represented on the committee. This committee should prepare accurate and detailed estimates of expenditure on Government account for colonisation of each area in which colonisation is needed. In the mean time a sum of Rs. 11·49 lakhs has been provided for colonisation facilities in all the major project areas.

303. In addition to the semi-autonomous Development Authorities, we recommend that statutory corporations or companies be formed under existing laws for speeding up colonisation. We expect that they would bring the initiative and enterprise of industrial organisations into the field of agriculture, and show the way to accelerated development of new lands. The methods of traditional organisations are slow, and more than one type of ogranisation needs to be studied and tried in order to speed up development. The major immediate task of land development in the new areas is in the Lower Sind, where about 600,000 acres need to be developed during the Plan period. Such companies could first be tried in this area somewhat on the following principles :

(a) The companies should be private and as far as possible wholly Pakistani. The Government should extend full assistance to them ;

(b) The period of lease should be sufficient to encourage them to take up the development of land ;

(c) The pattern of development should be approved by the Government ;

(d) At the end of the lease period, the land should be returned to the Government for distribution in accordance with its social policy ; and

(e) The block of land to be given to a company should be of adequate size, say, 20,000 acres or more, depending on the resources of the company.

The part to be played by these companies would be that expected from cultivators under the normal system. The Government will perform its part of providing roads, developed land for urban settlements, schools, dispensaries, credit, etc.

304. In order to consider the matter fully we suggest that a committee of officials and others be set up by the West Pakistan Government to make detailed recommendations on the organisation and operation of such companies.

## FARM MANAGEMENT

305. Farm management is concerned with economic decisions from the view point of any individual farm. It includes decisions of what and how much to produce and what quantities of resources and what production techniques to employ under the institutional, market, and technical conditions faced by farmers. The important consideration is to get the maximum profit from the farm as a whole rather than from any individual crop, livestock, or other farm activity, keeping in view the need to conserve the soil and other resources. Farm management will be developed by improving and expanding research, extension, and

education, and by expediting the supply of resources to farmers. Provisions included in the Research, Education, Extension and Village AID programmes should contribute to the development of farm management. In addition, 2 lakhs rupees are provided for a special programme of farm management research.

306. Surveys of farms conducted for the purpose of making farm management studies were carried out in the former N.-W. F. P. and the Punjab in 1953. In N.-W. F. P. records taken from 45 sugar cane farms in the Mardan—Charsadda area, were divided into high, middle and low income groups based on the cultivators' labour and management earnings. Some of the results obtained from this study were as follows :—

(a) " Net farm output " as an indicator of cultivator's wages was about three times as large in the high income group as in the low income group.

(b) High " Net farm output " resulted from high crop-yields, efficient labour of men and bullocks, and high-producing milk cows and buffaloes.

(c) More farm yard manure and fertiliser were used in the high-income group than in the low-income group.

(d) The high-income group purchased more improved seeds and employed more labour per acre for cultivating, sowing and harvesting.

(e) The poorer financial position of some families at the end of the year was due in part to large expenditure for weddings, celebrations and sickness.

307. We recommend that a country-wide farm management research programme should be carried out during the Plan period. These studies should have the following objectives among others :

(a) To discover the " farm practices that pay " and cause differences in income on similar types of farms in different parts of the country ;

(b) To work out costs of production of principal crops ;

(c) To calculate net family incomes under different systems of land tenure ;

(d) To discover the optimum live-stock-*cum*-crops combinations to give maximum returns under different types of farming in the country ;

(e) To determine the optimum size of holding for providing a satisfactory living standard to the farm family under different conditions ;

(f) To determine the extent of outside employment and under-employment on the farm ;

(g) To conduct research on the optimum location of crops in different parts of the country ; and

(h) To develop farm plans as illustrations of efficient farming for a set of conditions that represent the usual situations under which farmers must work.

The results of such studies would provide information necessary for determining optimum location of farm crops and enterprises among areas, provide farm management information to the cultivators, serve as a basis for the teaching of practical farm management, and provide valuable information for the development of public plans and programmes.

308. We recommend that the agricultural colleges should formulate specific schemes in the field of farm management to achieve these objectives. The Central Ministry of Agriculture should appoint a farm management specialist to coordinate the work of the Provinces. Similarly, the Provinces should have trained staff for this work. It may be that in addition to this staff, graduates specialising in agricultural economics, and final year under-graduates at various agricultural colleges could be employed in this work after some additional training.

## AGRICULTURAL STATISTICS

309. The information necessary to develop a plan for agriculture includes (a) the characteristics and quantities of available resources, and (b) the productivity of those resources when employed in alternative uses. Agricultural statistics should provide periodic information about such matters as the size of holdings, number of livestock and other assets of farmers and the quantities and values of production. Statistical information available now is incomplete, and in many cases inaccurate and belated.

310. A statistical section was established in the Ministry of Agriculture soon after partition. Later, an Agricultural Economics unit was created and combined with the Statistical Section. The statistical work of the combined section is limited primarily to the issue of crop forecasts, and quarterly weather and crop reports.

### Estimates of annual acreage of crops

311. Until recently East Pakistan had no local revenue staff in the villages. Area statistics were collected and compiled simultaneously by the Civil and Agriculture Services, and issued by the Director of Agriculture. The primary data in the case of Civil Services were collected by the circle officers through the Presidents of the Union Boards and the *chowkidars* (village watchman) and passed on to the sub-divisional officers who submitted them to the Collectors and finally to the Director of Agriculture. On the other hand, the Agriculture Department had its own staff with one Union Agriculture Assistant (also called Primary Licensing Agent for jute) in each union of about 10 to 12 villages, who recorded acreage figures, in relation to estimates derived from a complete plot to plot survey taken in 1944-45 but sometimes in absolute figures worked out in relation to the previous year's estimates. The data thus collected were passed on to the higher officials of the Agriculture Department in succession and finally compiled by the Directorate of Agriculture. Most of the Union Agricultural Assistants, who served as licensing agents for jute production have recently been transferred from the Agriculture Department to the Revenue Department, which is now being expanded.

312. Because there is no field-to-field survey, acreage estimates collected in East Pakistan are highly subject to inaccuracies. A more objective method of estimating should be adopted until the revenue staff is fully established in the villages. Some years will elapse before the revenue staff in the villages can take on the duties of acreage reporting. We recommend, as an interim measure, that a sample survey should be conducted each year by the staff now engaged in the estimation of the acreage and production of jute.

313. Statistical data of the areas sown to different crops are collected by the *patwaris* or *tappedars* (village accountants or subordinate revenue officials) of the Revenue Departments in the whole of West Pakistan except some parts of Quetta and Kalat Divisions and the Frontier Regions. The areas in which this service is not performed amounts to about one-third of the total area of Pakistan. The *patwaris* have a record of the area and dimensions of all the fields. By field-to-field inspection at intervals during the year, they collect the figures for the area sown to different crops in each season. These statistics are checked by the higher officers and compiled for the Province by the Director of Land Records. These data are then passed on to the Central Ministry of Agriculture where they are compiled for all Pakistan and published. The West Pakistan Government should make arrangements to include the areas now omitted in the estimates.

### Estimates of Annual Production of Crops

314. In West Pakistan the following formula is generally used to estimate annual production : annual production equals area sown times standard acre-yield times seasonal condition factor. The standard yield is understood to represent the average outturn on average soil in a year of average character as deduced from the information obtained from

experiments made up to the period under review ; the standard yield is revised from time to time. The condition factor is the yield of the current year in terms of the percentage of normal, as estimated by visual inspections. The crop-cutting experiments are sometimes not conducted at all, and at others inadequately. The result is that estimates of crop production are highly subjective and not very accurate. In East Pakistan the estimates of production are subject to even greater errors because the acreage figures are less satisfactory. Some crop-cutting experiments using a sample survey procedure have been started already. A scheme for estimating the area and production of jute sponsored by the Pakistan Central Jute Committee was put into operation in February, 1954, but the results have not yet been published. In November, 1953, the Pakistan Central Cotton Committee sanctioned a five-year scheme for forecasting the cotton crop but the work has not yet started. The crop-cutting work was done only in the former Punjab where surveys were carried out on wheat in the Lyallpur District during 1950-51, on wheat and cotton in the whole of the Punjab in 1951-52 and again on cotton during 1952-53. The results showed that official average yields were over-estimated in a poor year and under-estimated in a good year. The difference between the official estimates and the crop-cutting results in cotton varied from 2 per cent in 1951-52 to 40 per cent in 1952-53. We recommend that this work should be commenced in all parts of the country and be conducted every year. Necessary provision has been made in the Plan. Although the crop-cutting experiments are to be executed by the Provinces, there is need for coordinating the work. There is a nucleus staff in the Agricultural Economics and Statistical Section of the Central Ministry of Agriculture : we recommend that this Section should be strengthened to direct and coordinate this work.

315. At present the estimates of crop acreages and production (previously known as forecasts) are not generally issued on the schedule dates. It is of the utmost importance that the Provincial Departments should collect and transmit the full required data to the Central Ministry on time so that the object of issuing estimates is achieved.

**Statistics of Agricultural Prices**

316. Accurate and timely price reports should include estimates of prices of items used in agricultural production, including livestock and livestock products, and prices of the principal products of agriculture in each of the major geographical areas and for each major stage in the process of moving commodities from the farms to the consumers or for exports.

317. The Central and Provincial Governments are trying to provide market prices and other useful information to growers, traders, consumers and others concerned. Daily prices of agricultural commodities and livestock products are broadcast and published ; weekly and monthly prices are collected from important markets and published in the monthly bulletin " Markets and Prices ", issued by the Cooperation and Marketing Department of the Central Ministry of Agriculture ; and fortnightly wholesale and retail prices for various agricultural commodities are also published in some of the Provincial Government Gazettes. Some of the market committees, especially of " regulated markets " in the former Punjab under the Agriculture Produce and Marketing Act, display the prevailing prices at prominent places in the markets. Statistics of farm prices are, however, not available for all the major producing areas.

318. These measures taken by the Government do not seem adequate to remove the imperfection of the markets in time and place. We recommend that the Central and Provincial Governments should review and evaluate the scope and accuracy of present prices reporting work and implement any necessary changes in organisation and procedures.

**Agricultural census**

319. Statistics relating to the size and fragmentation of holdings, forms of tenure, land use, livestock numbers, production, financial status of cultivators, resources employed, and many other types of agricultural statistics, are usually obtained through an agricultural

and livestock census. Since independence no agricultural or livestock census has been conducted in Pakistan. An Agricultural and Livestock census was to be started in 1952, but was postponed because of financial stringency. The Central Ministry of Agriculture requested the Provinical Governments, early in 1955, to undertake the Livestock Census as early as possible. The Bahawalpur State completed the census ; in the former Punjab, Baluchistan, Khairpur and Sind the census was conducted between July and October, 1955, but the results were not available by March, 1956. In East Pakistan and the former N.-W. F. P. no action seems to have been taken.

320. Generally, any one of three methods may be followed when carrying out an agricultural and livestock census.

(a) Complete enumeration simultaneously conducted throughout the country ;

(b) Sample census, or

(c) Complete enumeration progressing by districts.

The first method is expensive and requires a large staff which is not likely to be available in the immediate future. The second method does not bring in detailed information on tehsil and village levels. Moreover, data obtained by this method are subject to sampling errors, the magnitude of which depends on the dispersion of the data and the size of the sample. The advantages of this method are low costs, less staff requirement and economy in time. Under the third method the census would be conducted in a limited number of districts each year. This method would need less staff and money than the first method and would be more accurate than the second ; we think this would be more appropriate under the present conditions and recommend it for the agricultural census which should be completed during the Plan period. The livestock census can be taken in a single year, and we urge that this be done as soon as possible. Once the census has been completed, annual sample surveys can be carried out in each district to keep the data up-to-date.

### Experimental design and statistical analysis

321. For accurate references and maximum amount of information it is essential that experiments should be arranged and the results analysed with appropriate statistical techniques. In some of the agricultural research institutes, statistical sections are available to help in the preparation of the field experiments, and in drawing conclusions from the results. The staff in those sections in both wings of the country should be strengthened and wherever properly qualified staff does not already exist, a beginning should be made by appointing at least one statistician able to guide the experimental work. This staff should be strengthened sufficiently in the course of time so that all research workers may have ready access to the advice of trained statisticians.

The Plan makes a provision of 35 lakhs rupees to expand and improve the agricultural statistics.

## TRAINING AND EMPLOYMENT OF PROFESSIONAL STAFF IN AGRICULTURAL EDUCATION, RESEARCH AND EXTENSION

### Need for more technical staff

322. The key to increasing agricultural productivity lies in increasing research and spreading information about better farming methods. This means more trained staff, and one of the factors most likely to limit the rate of agricultural development during the Plan period is the scarcity of adequately-trained technical personnel. Although the

Agricultural programme we propose is large in relation to the number of trained staff available and to the capacity of the existing organisations, it is modest in relation to the needs of the country and to the potentialities of its agriculture.

323. Agricultural research has already discovered improved agricultural practices which could increase production and cultivators' incomes. The use of these practices, such as applying artificial fertilisers, sowing in line, employing furrow turning ploughs, sowing improved seeds, and plant protection adopted on Government farms give much higher average yields than those realised by the farmers. During the Plan period it is a prime necessity to bring these proven methods into general use, and to carry to the farmers the results of new research. For this purpose an expanded, intensified, well-planned, and coordinated agricultural extension programme with additional personnel and facilities will be necessary. The extension workers must assist other Government and private agencies in securing the efficient use of supplies on the farms and in the improvement of marketing. For agricultural extension to play its necessary part in the development of the Village AID programme, additional staff will be required and many of the present members of the staff will require additional training.

324. To provide a continuous flow of information about farming methods designed to increase productivity, a greatly expanded research programme is necessary. The demand for the results of effort in research will be especially acute as closer and more continuous contact with the cultivators is developed through the Village AID and extension programme. To meet this demand for expanded research, many members of the present research staff may need additional training and a larger staff and greater research facilities will be required. The increased demand for research and extension staff, in turn, will create the demand for expansions and improvements in the teaching staff and teaching facilities.

### Present employment of Staff, training facilities and requirements

325. The Provincial Departments of Agriculture for many years have employed staff for research, teaching and extension work in order to foster improved agricultural practices among the cultivators. However, existing vacancies and the small number of staff in relation to the cultivated area and to the number of farmers and their livestock for which services should be provided, indicate that the shortage of technical staff is chronic, and is not due entirely to a sudden increase in the rate of development.

326. Partition left the country with very few institutions to train the technical personnel needed in various branches of agriculture. East Pakistan had a college of Agriculture but no college of animal husbandry. Immediately after partition a college of animal husbandry was started at Comilla which was later on moved to the agricultural farm at Tejgaon, Dacca. West Pakistan had only two agricultural colleges, at Lyallpur and Sakrand, and one veterinary college, at Lahore. In addition Islamia College, Peshawar provided a four years' course in agriculture. For forestry there was no institution to impart training in the whole of Pakistan. The number of persons who qualified from these institutions was too small to meet the requirements of the country.

327. The Agricultural College at Sakrand has been shifted to Tando Jam where new buildings have been constructed. A new agricultural college has also been constructed at Peshawar to replace the agricultural classes at the Islamia College. The Animal Husbandry College at Dacca is being shifted to Mymensingh. A college of forestry was opened for providing training to forest officers as well as forest rangers. At present this college is located at Abbottabad ; but will be shifted to Peshawar soon.

328. An accurate list of the numbers of staff employed at present in the various development Departments is not available; further information is needed before the total requirements of extension staff, including the additional staff required for the Village AID

programme can be determined. A summary of the number of extension workers employed at present in the departments of Agriculture and Animal Husbandry is shown in Table 12. The number of extension workers in agriculture is very small in comparison with the number of villages and cultivators, or the cultivated area or the population. In East Pakistan each agricultural extension worker covers theoretically on an average 45 villages, and 8,000 farmers. In general, extension workers at the union and thana levels have two years' training in agriculture, while the supervisors at sub-divisional and district level are graduates. In West Pakistan an extension worker, generally an agricultural graduate, has to look after about 158 villages, and about 24 thousand cultivators.

### TABLE 12

(a)

*Number of extension workers at present employed in the Agriculture and Animal Husbandry Departments and their relation to numbers of villages and cultivators, or of livestock.*

| | Agriculture | | Animal Husbandry | |
|---|---|---|---|---|
| | East Pakistan | West Pakistan | East Pakistan | West Pakistan |
| | (b) | (c) | (d) | (e) |
| Number of extension workers ... ... ... | 1,399 | 241 | 312 | 325 |
| Number of villages ... ... ... ... | 62,370 | 37,959 | 62,370 | 37,959 |
| Villages per extension worker ... ... ... | 45 | 158 | 293 | 117 |
| Number of cultivators ... ... ... ... | 10,556,000 | 5,886,000 | — | — |
| Number of cultivators per extension worker ... ... | 8,000 | 24,000 | — | — |
| Total livestock population ... ... ... ... | ... | ... | 19,800,000 | 23,186,000 |
| Number of livestock per extension worker ... | ... | ... | 93,000 | 87,000 |

(a) Excludes supervisory staff employed at the district or sub-Division level to supervise the extension workers.

(b) Staff working on jute regulation without two years' training in agriculture have been transferred to the Revenue Department and are excluded from this column, other Union Agricultural Assistants and Thana Agricultural Officers are included.

(c) Includes 182 agricultural graduates and 59 diploma-holders engaged in extension work.

(d) Mostly veterinary diploma holders.

(e) Includes both degree and diploma holder ; the exact number of each category is not known.

329. Some specialised extension staff exists in the Animal Husbandry Department of the East Pakistan Government, but none in West Pakistan. The veterinary surgeons who are in charge of dispensaries, in addition to their clinic duties, have to travel in the rural areas for about 15 days a month when they are expected to carry out both disease control and other extension work. The number of livestock that a veterinary surgeon is expected to look after averages 93,000 in East Pakistan and 87,000 in West Pakistan.

330. The position is still worse in forestry : no extension staff exists in the Forest Department. The only known extension work is the tree plantation weeks arranged once or twice a year when staff of the Forest Departments, with the help of the Revenue, Police and other departments, organise lectures and distribute free plants for transplanting.

331. The additional requirements of specialist based on schemes included in the Plan for agriculture, animal husbandry, and forestry with the exception of those needed in the Village AID programme and the expanded extension service in the non-village AID areas, are shown in Table 13.

### TABLE 13

*Additional specialists required for the development programme*, 1955-56, *and vacancies in the various departments at present* (*Excludes many extension and Village AID Personnel*).

| Nature of posts | East Pakistan | West Pakistan | Central Ministry of Agriculture | Total |
|---|---|---|---|---|
| *Agricultural Specialists* : | | | | |
| Required for development Plan ... ... | 113 | 421 | 18 | 552 |
| Existing vacancies ... ... ... ... | 2 | 134 | 3 | 139 |
| Total additional requirements ... ... ... | 115 | 555 | 21 | 691 |
| Estimated availabilities (*a*) ... ... ... | 105 | 400 | — | 505 |
| Estimated shortage ... ... ... ... | 10 | 155 | 21 | 186 |
| *Animal Husbandry Specialists* : | | | | |
| Required for development Plan ... ... | 140 | 239 | 55 | 434 |
| Existing vacancies ... ... ... ... | 10 | 141 | — | 151 |
| Total additional requirements ... ... ... | 150 | 380 | 55 | 585 |
| Estimated availabilities (*b*) ... ... ... | 120 | 150 | — | 270 |
| Estimated shortage ... ... ... ... | 30 | 230 | 55 | 315 |
| *Forestry Specialists* : | | | | |
| Required for development Plan ... ... | 42 | 201 | 7 | 250 |
| Existing vacancies ... ... ... ... | 1 | 3 | 11 | 15 |
| Total additional requirements ... ... ... | 43 | 204 | 18 | 265 |
| Estimated availabilities ... ... ... | 148 | | | 148 |
| Estimated shortage ... ... ... ... | 117 (*c*) | | | 117 |

(*a*) Based on average number of candidates likely to graduate.

(*b*) Based on average of successful candidates for the last 7 years from the East Pakistan Animal Husbandry College, Dacca.

(*c*) Of these 41 will be gazetted officers and 76 will be forest rangers (Non-gazetted).

332. Table 13 does not include the requirements of agricultural specialists for the Village AID programme, which are given in Table 14 below, or such technicians as range development specialists, soil conservationists and fisheries specialists, for whom no regular training facilities exist at present. We estimate that about 20 professional range development specialists, 30 soil conservationists, and about 30 fisheries specialists will be needed during the Plan period. Nor does the Table include such specialists as chemists, plant physiologists, and zoologists, who are trained by the universities and are likely to be available as required during the Plan period.

333. Table 13 shows an acute shortage of agricultural and animal husbandry specialists particularly in West Pakistan. Unless these gaps can be filled quickly, the programme will have to be curtailed.

334. In addition to the above requirements, there will be need for more extension staff in the areas to be covered by Village AID programme during the Plan period. The *total* requirements in the 172 development areas to be established by the end of the Plan period are given in Table 14. To determine the *net* requirements, the existing extension staff working in these development areas must be deducted. Two agricultural specialists, Two animal husbandry specialists, and one cooperative and marketing specialist will work in each development area, covering about 150 villages ; in addition wherever conditions demand, specialists in fisheries, soil conservation, etc., will also be employed. Similarly at the sub-divisional or district level, there will be need for specialists in agricultural engineering, plant protection, and in some cases, forestry, fisheries, horticulture, soil conservation and range management. When the *net* requirements are added to the requirements of the respective departments, the deficiencies shown in Table 13 will be increased considerably.

## TABLE 14

*Gross requirements of agricultural personnel for Village AID programme, 1955—60*

| Specialists | East Pakistan | West Pakistan | Total |
|---|---|---|---|
| | A. *At Development area level* | | |
| Agricultural ... ... ... ... ... ... | 160 | 184 | 344 |
| Animal husbandry ... ... ... ... ... ... | 160 | 184 | 344 |
| Co-operation and marketing ... ... ... ... ... | 80 | 92 | 172 |
| | B. *At the Sub-Divisional/District Level* | | |
| Agricultural engineers ... ... ... ... ... | 54 | 44 | 98 |
| Plant protection ... ... ... ... ... ... | 54 | 44 | 98 |
| Foresters ... ... ... ... ... ... | 16 | 44 | 60 |
| Fisheries ... ... ... ... ... ... | 54 | 25 | 79 |
| Horticulturists ... ... ... ... ... ... | 54 | 37 | 91 |
| Soil conservationists ... ... ... ... ... ... | ... | 38 | 38 |
| Range management ... ... ... ... ... ... | ... | 31 | 31 |

*Notes.*—(1) From these numbers the staff already in position will have to be deducted in order to determine additional requirements of staff.

(2) In addition, specialists will be required in each of the following fields : health and sanitation, work, education and cottage industry.

335. Development Officers and village workers will form the core of the Village AID programme. In all, 172 development officers (80 in East Pakistan and 92 in West Pakistan) about 5,160 male village workers (2,400 in East Pakistan and 2,760 in West Pakistan) and 688 female village workers (320 in East Pakistan and 368 in West Pakistan) will be required. Facilities for the training of these are discussed in the Chapter on Village AID.

336. In East Pakistan until recently there were agricultural assistants in the union (10—13 villages), thana Agricultural officers in the thanas, and sub-divisional agricultural officers at the Sub-division level with a district agricultural officer for each district. However, most of the union and thana assistants and some of the sub-divisional officers are not properly trained and qualified. Most of the union agricultural assistants have been transferred to the Revenue Department. What is needed in East Pakistan is, therefore, the proper training of the remaining extension staff in order to raise the status of these officers to a par with the staff of equivalent training in other technical Departments. We strongly recommend such a programme of additional training and have, therefore, made provision for this purpose. In the Department of Animal Husbandry, however, there are only about 160 assistant animal husbandry officers for extension work, in addition to the veterinarians in charge of dispensaries—one extension worker for almost every three thanas.

337. As the Village AID programme expands, extension staff in the different development departments will be strengthened on a unified basis. But at the contemplated rate of development it should be possible to cover most of the rest of the country by 1965. In the meantime we recommend that the extension staff, at least in the Agriculture and Animal Husbandry Departments, should also be strengthened in non-development areas. Provision has been made in the Plan to have one or two agricultural assistants and two to four fieldmen (*mukaddams*) in each *tehsil* or *taluka* and one gazetted officer in each district in West Pakistan. An appreciable increase is also contemplated in the Provincial Animal Husbandry Department for extension work. There is an acute need also for building up an extension organisation in the Forestry Departments of both Wings.

### Measures to expand agricultural research and extension services

338. The shortage of adequately trained technical staff and the failure to use effectively those who are available can be attributed to several causes, including :

(*a*) Low salaries and poor employment conditions.

(*b*) Inadequate and poorly-equipped training institutions.

339. *Salaries and employment conditions.*—The first and perhaps the most important factor that is contributing to the shortage of qualified technical personnel has been the poor salaries offered to, and unfavourable promotion prospects for, the technical graduates passing out of the agricultural and other rural development institutions after having four to six years of college training after matriculation. Moreover these technicians are generally posted to small towns in rural areas where services like hospitals, schools, and recreation facilities are not available. The result is that not many good students are attracted by these colleges ; and enrolments are not in some cases anywhere near their capacities. Furthermore, many graduates from these institutions seek and find more lucrative employment in fields other than the rural development departments. This is borne out by the fact that during the period 1952-54, 166 students graduated from the Agricultural College, Lyallpur but only 62 joined the former Punjab Agriculture Department while 104 sought employment elsewhere. During the same period 40 agricultural graduates resigned from the Agricultural Department of the former Punjab for more profitable employment elsewhere.

340. In order to remove these obstacles to rapid development in the field of agriculture, the first step must be to raise salaries and to improve employment conditions for technical people working in rural development Departments. Such improvements are necessary to attract larger numbers of better qualified students for admission to the institutions and to induce them after training to seek employment in their own fields. Now that the country has embarked on a development programme, agriculture has assumed special importance. There is little hope of achieving any significant results unless the agricultural staff are put on a level comparable with that of scientists and technicians working in other fields. Because the period of their training is slightly shorter, and the admission tests of agricultural colleges are a little less severe than those for engineers, some difference of salary would be appropriate, but, subject to such differences, agricultural scientists should be given conditions and promotion prospects comparable with those of other technically trained personnel. Unless this is done agriculture will fail to attract ambitious and promising young men, those who graduate may seek careers in other occupations where they see distinctly better prospects, and agriculture will continue to suffer, and the development plans will not be implemented effectively. It can be argued that salaries in all departments should be considered together, but the case of agriculture is special and should be treated as such, so that an efficient and active organisation could be created in this important field where a rapid increase in production of food and raw materials is essential as a foundation for economic development of all sectors of the economy.

341. In addition to increased salaries, technical staff must be provided with suitable facilities. The efficiency of the existing staff in carrying out the work especially in extension is greatly hampered by the lack of adequate transport facilities. We recommend that necessary transport facilities in the form of jeeps, motor-cycles, motor-boats and bicycles should be provided to the staff in order to increase their efficiency.

342. Another factor which can play an important role in improving the efficiency of the extension workers is to keep them abreast with the latest development in the fields of research and extension methods. At present, virtually no facilities exist for preparing "aids" for mass education, such as illustrated bulletins, audio-visual aids, broadcast talks in the local languages, and so on. We recommend that for this purpose appropriate materials from the annual reports of the development departments should be regularly published in popular forms and made available to all the staff of the development departments. There is also the need for issuing Agricultural and Animal Husbandry Journals both in English and Urdu in West Pakistan to be distributed to the extension staff and the villagers at a nominal price. In East Pakistan, there is a very good monthly journal known as "Krishi kotha" (information for cultivators) with a monthly circulation of about 14,000. It is recommended that the publication of this journal should be continued, the quality improved, and the circulation increased many times. There is also the need for the appointment of information officers in the rural development Department, and for the provision of publicity materials such as audio-visual aids in West Pakistan. In East Pakistan there already exists a nucleus staff consisting of public relation officer, a photographer, and other staff required for publicity work ; this staff should be strengthened.

343. The declared policy of the Government is to carry out rural extension work through the Village AID programme, in co-operation with the extension services of the development departments. Technical workers must be free from time-consuming administrative activities in order to devote most of their time to technical duties. In research there should be an inventory and appraisal of present work and a comprehensive programme for improving the scope and method. At the technical and administrative levels of both extension and research, there should be periodic reviews of progress and plans for the future.

344. *Training programme.*—A training programme for Village AID workers is discussed in the Chapter on Village AID ; the present section is concerned primarily with the training of research, extension and teaching personnel in the other rural development Departments. We recommend that steps should be taken (a) to increase the capacity of the agricultural college at Lyallpur, to complete those at Tandojam and Peshawar and to start two year courses at all three, and to begin fieldmen's training courses at Quetta and Rahimyarkhan, (b) to modernise, expand, and reorganise the Animal Husbandry and Veterinary Institutes at Lahore and Mymensingh, and (c) to develop and reorganise the Pakistan Forest College and Research Institute at Peshawar. Additional grants, stipends and scholarships for agricultural, forestry and animal husbandry education are required to attract a larger number of well qualified students in these subjects.

345. There are several measures that can be taken up to alleviate, to some extent, the shortage of technicians in the short run. We suggest that the heads of the respective departments should study their organisations carefully to see if some of the vacancies in their departments could be filled, if only temporarily, by people with less training and by graduates in other fields. Especially in East Pakistan it might be found that additional training and in some cases re-assignment of present staff would aid considerably in meeting the demand for personnel in the expanded and intensified extension programme. Study may reveal that there are also possibilities for economising in personnel and equipment by physical centralisation of research. Such a move would give a research worker an opportunity to supervise a number of projects rather than one or two only and would make it possible for a larger number of persons to use expensive equipments such as microscopes, machines and other laboratory facilities.

346. While most of the needs for rural development personnel are for college graduates, there will be a number of posts which could be filled by less-trained people. In pre-partition days, at the Agriculture College, Lyallpur, there was a two-year training course in agriculture (now discontinued) given to students after matriculation to fill posts for extension work. We recommend that such courses for practical agriculturists, animal husbandrymen, range development specialists, soil conservationists, cooperative specialists and so on, should be started at the appropriate existing institutions. This programme might be supplemented by short-courses of instructions for in-service people to keep them abreast of the latest knowledge in practical production.

347. It is also possible that Arts and Science graduates could be given some additional training that would enable them to fill some of the specialists' posts. Such training will open new fields for talented graduates who after obtaining some technical training could fill the gap between the supply and demand of technicians.

348. The need for improvement in the quality of rural development personnel is no less critical than improved training. Three major points can be made in this respect. First, the training imparted should be much more practical, not in the sense of performing routine farming operations much of the time, but in working out, with means that can be made available to the cultivators, solutions to the actual problems confronting the farmers. The students should not only learn how to do things but also should be able to demonstrate to the farmers how these should be done. Secondly, the work needs to be more generalised ; the students should learn something about all the rural sciences that serve the farmer (including social sciences). Thirdly, the students should get a better general education—to learn more about their country, its history, government, economy, natural resources, and people.

349. Especially for extension workers there is the continuous need for keeping well informed on new developments. To fill this need conferences of the extension workers

should be held annually in each district or circle, where the latest techniques of instruction and findings of research would be demonstrated by experts from the colleges, research institutes, and extension specialists.

350. We strongly feel that graduate education and advanced research on rural development should be centralised geographically as far as possible. There would be great advantages if the colleges and institutes for research and training in agriculture, animal husbandry, cooperatives, forestry, fisheries and rural social sciences were located in the same places. Those colleges and training institutes could then be turned into rural universities when the time is ripe. The aim during the next five years should be to raise the quality of these colleges and institutes, so that the country's dependence on foreign universities for training specialists can be reduced to the minimum. In the long run, it would be cheaper to bring good scientists from all over the world to Pakistan long enough to establish strong departments than to continue indefinitely sending young men and women abroad. Every encouragement and assistance should, however, be given to rural development staff desirous of pursuing an advanced course in institutions abroad.

351. Large changes are thus required in the field of agriculture education. Careful study should precede these changes, and competent direction accompany them. We recommend that a permanent Council of Agricultural Education should be established in each Wing, to include representatives from the Departments of Agriculture, Animal Husbandry, Cooperative, Forestry, Village AID. Soil Conservation, Education and from the technical staffs of universities and colleges. Each Council should prepare a long-range plan for the development of training in agriculture in the provinces, with recommendation on facilities, curricula, period of training, salaries of trained government personnel, and so forth.

352. Until these Councils can be established, we would urge the Provincial Governments to implement the proposal we have already made to them, establish interim councils to make studies to improve and amplify the available information on the number of technicians needed for rural development, and the numbers available during the Plan period. Thus interim Councils would be asked to advise what can be done in the next few years to maintain the tempo of development. As soon as the permanent Councils are formed, they would assume responsibility for these activities.

353. For additional personnel and facilities, extra training provisions, and increased salaries, the Plan makes the following provisions :—

| | (Crores of rupees) |
|---|---|
| Agricultural education and research ... ... ... ... ... ... | 2.25 |
| Agricultural extension ... ... ... ... ... ... ... ... | 1.47 |
| Total ... | 3.72 |

## ADMINISTRATIVE ARRANGEMENTS IN RESEARCH

354. Administration of research should be arranged so as to ensure fulfilment of the following conditions :—

(*a*) Professional research workers should be required to spend only the very minimum time in administrative matters in order that most of their time may be spent in planning, conducting and reporting results of research ; perhaps separate staff should be appointed for administration.

(*b*) Research resources should not be allotted to minor problems at a time when more important ones need to be solved ;

(*c*) The research work should be based on the needs of the farmers, and integrated with educational and extension work in order to minimise the lag between the time of discovering and the time at which results are used, and

(*d*) Relevant results developed in any one field of endeavour should be used in other fields ; often combined results from several subject matters are much more significant than when taken separately. In summary, the arrangements should ensure that the individual schemes fit into a research programme in which the most important problems are attacked and that decisions and action are timely.

355. A comprehensive review of present organisation and administrative procedures must be undertaken before recommendations can be made. We suggest that the Central Ministry of Agriculture in co-operation with appropriate Provincial Departments should as soon as possible initiate such a review. The problem of determining the most effective arrangements will be difficult, because there is the need both for coordinating the research work in the different branches of agriculture and for integrating research with extension, education and action.

356. Among the many matters for consideration in this review are the following :—

(*a*) The advisability of having one competent person at the head of the administration of all branches of agricultural research in each institution. The present arrangement in which the head of each subject matter reports directly to the provincial directors may be unnecessarily time consuming and does not permit effective direction and coordination at the local level.

(*b*) The need for the agencies to provide materials and in some cases additional facilities and services to parallel the research, extension, education, and regulation work.

(*c*) The role of the Central Cotton and Jute Committees which, like the Pakistan Food and Agriculture Council and the Provincial Agriculture Departments are concerned with the financing and administration of agricultural research. Organisations based on particular commodities can perform the very desirable functions of (i) integrating the various phases of work such as production, processing, and marketing, and (ii) co-ordinating the different forms of work such as research, extensions, regulation, and action. But there are disadvantages also ; autonomous commodity committees are likely to claim a greater share of funds than a dispassionate analysis would grant them. Under the existing arrangements no comprehensive review or co-ordination of research is possible. For balanced agricultural development, growth of research and fuller utilisation of technical man-power, it is essential that commodity committee schemes, particularly those financed by public funds, should be subject to examination by the body which examines schemes relating to other commodities.

357. The Food and Agriculture Council is at present entrusted with the task of promoting and coordinating agricultural research and dissemination of the results. It is composed of Government officials and a number of non-official members. We recommend that the membership of the Council should include extension workers, Village AID officials, and more non-official members, so as to bring wider knowledge of research needs to bear upon the allocation of funds for research. We recommend that the functions of the Food and Agriculture Council should be broadened to include the following :—

(*a*) To prepare and keep up-to-date a long-range plan for research in the agriculture sciences ;

(*b*) To plan and assist the initiation of research in fields not now covered;

(*c*) To play a leading role in improving the quality of research in different agricultural fields ;

(*d*) To maintain a continuing appraisal of current research in agriculture ; and

(*e*) To stimulate and assist in the prompt publication of research results in a form suitable for use by extension workers, Village AID and development personnel and farmers.

358. To perform adequately the functions of this enlarged programme, the Council would require a small but competent technical staff who would assist them in technical matters relating to the various branches of agriculture, animal husbandry, forestry, and other fields of work.

359. Public expenditure on agricultural development is summarized in Table 15.

TABLE 15

*Summary of Agricultural Development Programme*, 1955—60

| Sector | Funds provided |
|---|---|
| | (Crores of rupees) |
| Plant Breeding ... ... ... ... ... ... ... ... | 1·40 |
| Seed multiplication and distribution ... ... ... ... ... ... | 4·65 |
| Manures and fertilizers ... ... ... ... ... ... ... ... | 17·83 |
| Plant Protection ... ... ... ... ... ... ... ... ... | 3·96 |
| Additional research projects ... ... ... ... ... ... ... | 0·40 |
| Mechanization ... ... ... ... ... ... ... ... ... | 4·24 |
| Marketing and storage ... ... ... ... ... ... ... ... | 5·40 |
| Fisheries ... ... ... ... ... ... ... ... ... | 2·81 |
| Animal husbandry ... ... ... ... ... ... ... ... | 9·31 |
| Range management ... ... ... ... ... ... ... ... | 0·67 |
| Forestry ... ... ... ... ... ... ... ... ... | 10·07 |
| Soil Conservation ... ... ... ... ... ... ... ... | 0·94 |
| Soil Survey ... ... ... ... ... ... ... ... ... | 0·13 |
| Colonization ... ... ... ... ... ... ... ... ... | 11·49 |
| Farm Management ... ... ... ... ... ... ... ... | 0·02 |
| Agricultural Statistics ... ... ... ... ... ... ... ... | 0·35 |
| Training and employment of professional staff in Agricultural Education, Research and Extension ... ... ... ... ... ... ... ... ... | 3·72 |
| Rural Credit ... ... ... ... ... ... ... ... ... | 9·52 |
| Land reforms ... ... ... ... ... ... ... ... ... | 1·15 |
| Underdeveloped areas ... ... ... ... ... ... ... ... | 0·55 |
| Total ... | 88·61 |

## Chapter 10

# RURAL CREDIT

## INTRODUCTORY

1. Finance is needed by the people living in rural areas for agriculture, occupations allied to agriculture, and rural industries. It is needed for production, marketing, and consumption even when no development is in progress. It would be almost impossible to accomplish any development without making provision for an adequate volume of credit. The introduction of fertilisers, new implements, better livestock, improved seeds, etc., on a satisfactory scale is impossible without proper credit facilities. A rural credit programme is an essential part of rural development in general and of agricultural development in particular.

2. Rural credit presents problems of great magnitude and complexity. Credit is needed by millions of cultivators, most of whom have no security to offer which would be acceptable under ordinary banking conventions. Besides, rural credit needs an organisation spread over the entire country and penetrating into its remotest parts. It has to serve men who are largely illiterate, easy victims of fraud and exploitation and generally unable to safeguard their interests. It is, therefore, exceedingly difficult to organise and supervise. If the aim did not go beyond providing credit facilities for men of large means who have land or other equally acceptable security to offer, it would be mainly a problem of organisation and technique not very dissimilar to that of credit for trade or industry. In addition to being a stupendous problem of organisation and administration, it is also a social problem. In conjunction with other programmes of rural development, it must have embodied within it a positive effort to raise the poor and illiterate farmer in the social scale, and to transform him into a credit-worthy and self-reliant citizen who is able to contribute his highest potential to the economic and social life of the country.

3. Rural credit is usually classified as short-term (about one year), medium-term (one to five years), and long-term (exceeding five years). Short-term loans are needed for seasonal production, processing or marketing, and to pay for consumption between harvests ; these loans can be treated as a part of working capital requirements. Medium-term loans are needed for livestock, implements, reconstruction of houses, small irrigation works, including wells, and for equipment not expected to last for more than five years. Long-term loans are needed for repayment of debts, improvements of a lasting character, enlargement of holdings, etc.

4. Various estimates have been made of the aggregate need for rural credit. It is extremely difficult to make estimates with any claim even to rough approximation. The State Bank has recently estimated the need for short-term credit to be 3,000 million rupees. The magnitude of requirements will increase as development gets under way and supplies of improved seeds, fertilisers, improved breeds of cattle, etc., become available and are brought into greater use in the country. We have made no attempt to make any estimates, for they would be no better than those that have been made by others. It is sufficient to appreciate the fact that the needs are large. Our resources in terms of organisation and personnel are seriously limited, and with the utmost efforts it will be possible to meet during the Plan period only a small proportion of the actual needs. The important thing is to select those needs that will contribute most to economic development in the immediate future. Greater importance must, therefore, be attached to short and medium-term credit for productive purposes than to other credit requirements. Perhaps medium-term credit is even more urgent for a farmer than short-term. With the loss of a bullock, the drying up of his well or the collapse of his house due to heavy rains, he is faced with a threat of disastrous consequences to himself and his family.

## SOURCES OF RURAL CREDIT

5. There are the following sources of rural credit in the country :

(a) Private money-lenders;

(b) Friends, relatives and landlords;

(c) Commercial banks;

(d) Public agencies; and

(e) Co-operatives.

Because of lack of data, it is impossible to estimate the relative importance of these different sources. We consider each of them below.

### Private money-lenders

6. The private money-lender (the *bania*) had received a set-back before partition due to restrictions on transfers of land to non-agriculturists and debt relief legislation. With the migration following partition he left the stage altogether in West Pakistan. In East Pakistan, village traders and big paddy growers have been the principal sources of credit since the enactment, before partition, of the Money Lenders' Act. In the absence of reliable data, which can be collected only by a credit survey, we can only speculate about the present situation. We would not, however, be far wrong in assuming that, as surmised by the Boyd-Orr Agricultural Inquiry Committee, new classes of money-lenders must be establishing themselves in the country, and that until they integrate themselves into the rural economic and social structure they will show an even greater tendency towards ruthlessness and rapacity than those they have replaced. The departure of the *bania* money-lender from the scene was a challenge as well as an opportunity to modern institutional agencies to organise themselves to fulfil the needs of the rural economy. There is no evidence that the opportunity has been utilised to any extent.

### Friends, relatives and landlords

7. It would be unwise to expect any substantial expansion of this source of credit. Friends and relatives cannot be depended on to provide credit except to relieve distress or to prevent disaster. As a class, landlords would be more than human, if, while lending money, they did not take advantage of their position to impose burdensome conditions and to leave as little of the net produce as possible with the cultivator. These sources cannot play any major role in meeting the increased need for credit for production purposes.

### Commercial banks

8. Commercial banks have never interested themselves in supplying credit except on the security of agricultural produce after it has reached the middlemen. The bigger banks do not concern themselves sufficiently even with internal trade. We may, therefore, ignore the commercial banks while considering credit required for rural and agricultural development. It is not our intention, however, to find fault with them in any way. They are organised and equipped to deal with banking business of certain types, and rural production credit with its special problems and difficulties falls outside their sphere. They would rightly regard the employment of their resources in rural credit as somewhat risky and unjustified, in addition to being expensive.

## Public agencies

9. The Governments provide agricultural credit in the form of *taccavi* under the Land Improvement Loans Act, 1883, and the Agriculturists Loans Act, 1884. The former is concerned with long-term and the latter with short and medium-term loans. *Taccavi* has a vital role to play in time of famine and distress, and can also be employed usefully in relatively undeveloped areas as well as for backward classes of people. In 1952-53 a sum of 10·5 million rupees was advanced in the form of *taccavi*, which was only a very small part of the total need. *Taccavi* loans are not regarded to be popular with cultivators due to delays and difficulties in obtaining them, the process being characterised sometimes by corruption and high-handedness on the part of officials. They are not planned properly; they do not reach the recipients in time or in full; usually they are paid in haste towards the end of the financial year or in conditions of distress. Their total amounts are small and they seem to favour men of large means rather unduly. We nevertheless feel that, despite its shortcomings, *taccavi* is potentially important for rural credit in the immediate future, at least in some parts of the country. The co-operative credit societies will not for some time be able to perform their role effectively, and the possibilities of utilising the Government agency must not be overlooked, at least in the Plan period.

10. The Agricultural Development Finance Corporation was established in 1952 for providing agricultural credit. The Corporation can advance loans to any agricultural concern for use in agriculture or the development of agricultural products. It can make loans to agricultural concerns, including co-operatives, and also purchase their debentures subject to the maturity period being limited to 20 years. No loan may exceed Rs. 1 lakh in the case of an individual or Rs. 5 lakhs in the case of a company or a co-operative society. In practice loans are provided in kind, although loans in cash are permitted. By the 31st December, 1955, the Corporation had sanctioned 571 applications for loans amounting to Rs. 56.97 lakhs. Operations of such volume can make no impression on the rural credit situation. The Agricultural Development Finance Corporation suffers from several shortcomings, such as lack of field staff and a restricted number of offices, which, in addition to Karachi, are situated only in Dacca, Lahore and Sukkur. Since the bulk of the loans are disbursed in kind, the problem of providing machinery, spare parts and servicing facilities has not been easy. Inevitably the Corporation has tried to develop its loan operations on the basis of land mortgages. The Corporation suffers as a result of its distance from and inaccessibility to the masses of land owners and cultivators residing in villages. In its existing form and with the present approach towards organisation its potentialities are very limited, and we cannot regard it as a factor of any significance in a rural credit programme. In view of its lack of contacts with the villages, its operations must suffer from a strong bias in favour of the man with large means and abundant bankable security. In fact, this bias in the case of the Agricultural Development Finance Corporation must be far more pronounced than in the case of any other agency, except the commercial banks, which are not concerned with rural production credit.

## Co-operatives

11. The history of co-operative credit begins with the enactment of the Co-operative Societies Act of 1904, which authorised the formation of co-operative departments and co-operative credit societies. This Act was amended by the Co-operative Societies Act of 1912, which authorised the formation of co-operative societies for non-credit purposes also. Ever since its inception, co-operation has been the main hope in the field of rural credit. We believe that in the conditions of our country it embodies the largest potential of all agencies in this field, and, therefore, deal with it at some length.

12. Table 1 below shows the progress of co-operatives since partition.

TABLE 1

*Primary Agricultural Co-operative Societies including Supply and Multi-purpose Societies, 1948-49 and 1953-54*

| Provinces/States | Number of societies | | Membership | | Working Capital | |
|---|---|---|---|---|---|---|
| | 1948-49 | 1953-54 | 1948-49 | 1953-54 | 1948-49 | 1953-54 |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| | | | (Thousands) | | (Lakh of rupees) | |
| Punjab ... ... ... | 8,064 | 8,467 | 226.1 | 259.4 | 322.4 | 348.3 |
| North-West Frontier Province | 960 | 1,150 | 20.0 | 26.2 | 16.7 | 23.8 |
| Sind (a) ... ... ... | (190) | 142 | (24.9) | 13.9 | (31.8) | 18.7 |
| Baluchistan ... ... | ... | ... | ... | ... | ... | ... |
| Bahawalpur (a) ... ... | (414) | 526 | (12.0) | 16.0 | (15.2) | 17.7 |
| Khairpur ... ... | ... | 7 | ... | 0.3 | ... | 0.2 |
| Total { W. Pakistan ... | 9,628 | 10,292 | 283.0 | 315.8 | 386.1 | 408.7 |
| Total { E. Pakistan ... | 27,559 | 16,143 | 825.5 | 819.9 | 398.9 | 289.5 |
| Total Pakistan ... ... | 37,187 | 26,435 | 1108.5 | 1135.7 | 785.0 | 698.2 |

(a) Figures for Sind and Bahawalpur in Columns (1), (3) and (5) relate to 1949-50.

*Source*: Office of the Co-operation and Marketing Adviser.

13. The co-operatives played a creditable role in the immediate post-partition period, when they filled the breach caused by the disruption of credit and trade organisations in West Pakistan consequent upon the migration of Hindus. This led them into commercial and trading activities, in which they had to deal with non-members and increase their operations in the urban areas. They have since freed themselves largely from trading activities, but commercial loans reflected in lendings to non-members for non-production purposes are still the dominant feature of many banks. The number of co-operative societies is large in East Pakistan, but the movement there was seriously injured by the depression of the 1930's, from which it never fully recovered. A large number of societies are defunct or wholly ineffective. Partition left the Provincial Co-operative Bank in Calcutta and, although a provincial co-operative bank was organised in Dacca very soon, co-operative banking has not really been restored.

14. The total amount of loans granted during 1953-54 by the agricultural credit societies was 20 million rupees, which is a very small fraction of the total agricultural credit needs of the country. The total membership of agricultural credit societies in 1953-54 was 6 lakhs. If each member represents a farm family, the agricultural credit societies have only about 5 per cent of the total farm families on their roll. They made a total profit of 660,000 rupees during 1953-54. Although the average membership per society has increased since partition, it still remains below the optimum size for efficient management, supervision, and effective control.

15. Mention might be made of the societies formed for meeting non-credit needs. For example, what were formerly the Punjab, North West Frontier Province, Sind and Bahawalpur in West Pakistan have farming societies. Some co-operative societies have been doing the work of consolidation of holdings, though their progress has not been significant. In the former Punjab and North West Frontier Province they have consolidated about 600,000 or 700,000 acres in a period of over 30 years. There are co-operative marketing societies also in certain areas, but some of them have been ineffective. The formation of stock-breeding societies has also been going forward in certain areas. In addition, there are special types of societies, such as those for sugar-cane, betel leaf production, silt clearance, and veterinary first aid.

16. Judging from all available evidence, there is no doubt that the impact of the co-operative movement, either quantitatively or qualitatively, is not even as great as the figures, small as they are, would seem to suggest. Many committees have investigated the problems, achievements and difficulties of co-operatives in the Indo-Pakistan sub-continent, and there seems to be general agreement that they suffer from serious shortcomings and have not fulfilled expectations.

17. The Royal Commission on Agriculture, 1928, while referring to the increase in the numbers of societies, observed that " increase in numbers has not always been accompanied by improvement in quality. The reasons for this would appear to be that while societies have been registered freely there has been a lack of patient and persistent education of the members in the principles and meaning of co-operation by teachers competent to perform their task efficiently under adequate supervision. Further, there is evidence that supervision and guidance have been withdrawn too soon. Members of co-operative bodies have not been adequately trained to assume the responsibilities thrown upon them ; a natural restiveness under control has found expression in resentment against what has appeared to be undue official interference, and transactions have been embarked upon which have led to disaster."

18. The Co-operative Planning Committee (1946) made the following observations :

" A brief mention may be made at this stage of the causes of the limited progress that has been made by the co-operative movement in India. The main causes are : the *laissez-faire* policy of the State, the illiteracy of the people, and the fact that the movement did not, especially in its initial stages, take the life of the individual as a whole. Among the other causes are the small size of the primary unit and undue reliance on honorary services for even day to day work, with resultant inefficiency in management. It is hoped that the causes responsible for the limited progress of the movement will be removed in the near future, and that the co-operative movement will make its influence felt, in an increasing measure, among all sections of the community."

19. The Pakistan Agricultural Inquiry Committee (1952) recommended the creation of a National Co-operative Organisation under official guidance and supervision, and observed that the organisation " will need to be built on the present foundations. In general they are disappointingly weak. Reforms are needed in the movement whether or not the suggested organisation is constituted."

20. An Expert Committee, consisting of members possessing wide knowledge of rural and agricultural conditions, as well as of co-operation, was appointed to spell out the form and the financial and administrative details of the National Co-operative Organisation recommended by the Boyd-Orr Committee. After giving an analysis of the past history, the Committee observe that "Co-operation has suffered and cannot be expected in its present form to serve as a vehicle for national development and advancement". This verdict, emanating as it does from men of wide experience combined with keen interest in the development of co-operation, is of great significance. The moral to be drawn from it is that the Government must interest itself in co-operation as "a vehicle for national development and advancement" and not merely as a departmental activity mechanically carried on from year to year with no long-range national objective in view.

21. In 1954 an exhaustive report on rural credit appeared in India after a rural credit survey carried out under the auspices of the Reserve Bank of India. Pakistan has inherited its co-operative organisation from pre-partition India. The Indian and Pakistani co-operative organisations have a common history and common administrative traditions and have functioned in a common political, social and economic environment. The conclusions stated in the Indian report are therefore, deserving of consideration. This does not mean that the recommendations that have been made are necessarily applicable to the conditions of this country. The solutions must be relevant to the social environment and the stage of development in which they have to be applied.

22. On the basis of an exhaustive assessment of the past performance and the present position of co-operative credit, the report suggested the following conclusions :

"The Rural Credit Survey.......................................................reveals that the place occupied by co-operative credit in the rural finance of the country is even more insignificant than ordinarily supposed. Organisationally and financially, there has, at the apex level, been considerable expansion in the recent past ; even so, the central banks still remain weak and largely unco-ordinated ; but the weakest link of all in the chain, which is weak at almost all points, is the primary co-operative credit society. It satisfies none of the requisites of either good co-operation or sound credit. Its failure to promote thrift and savings is followed at not too great a distance by its failure to provide in the village a system of credit which is at once adequate, prompt and productive. Even in the two States in which co-operative credit may be said to be less ill-developed than elsewhere, *viz.*, Bombay and Madras, the Survey reveals that a disproportionately large share of the benefit goes to the big and large cultivators."

"These remarks, which are primarily with reference to short-term credit, also apply to medium-term and long-term agricultural credit. The former is still a big lacuna everywhere. The latter apart from Madras and Andhra, which contain the beginnings of development—is practically undeveloped in India. To certain promising features of the recent past we shall refer in Chapter 36 in the context of recommendations. Those apart, it may be said of the land mortgage banking system of India that, at its best, it raises inadequate funds in a manner ill-related to demand and usually lends them in a manner un-coordinated with development ; acts as if prior debts, and not production, had prior claim on its attention ; reaches mainly the large cultivator and reaches him late."

23. The report summarised the most important features of co-operative credit in the following words :

"To summarise some of the features so far noticed in this chapter and the foregoing one, it would appear that the system of providing loans to the cultivator at the level of the primary credit society is characterised by : insistence in many States, on a form of security which results in credit aligning itself to ownership of property ; indifference to recovery, the failure to recover in turn leading to low turnover of funds ; inattention to purpose, productive or other, and failure to relate recoveries to production ; consequent on all these, both a tendency to be complacent about supervision and, in actual fact, a very large lack of supervision ; and, necessarily, the mounting up of overdues, to which reference has been made in the previous chapter. All these are major features which, during the last fifty years, have established themselves in the system of co-operative credit. That the system as it has actually developed is not the same as the system that was designed by those who originally established it in India, or even the same as that which was still hoped for by those who reviewed it at different stages, is of course very true. But that is a point which raises the whole question as to why design and development have so diverged from one another in the record of co-operative credit in India. The question is one which we will take up in a subsequent chapter. Meanwhile, the fact remains that the system, as it now operates in regard to purpose and supervision or recovery, turnover and overdues, is not a system of credit which is likely to attract funds on its own merits and in the normal course of business. Moreover, the system of loaning, as it now prevails at the primary stage, is such that it has no larger scope for utilising the funds available at the higher levels of the structure in a manner which implies sound, purposive and equitable disbursement of credit. Much improvement, even within the present framework, though not within the present practices, is undoubtedly possible. Whether apex and central banks, with or without such possibilities, are for their part giving due priority to co-operative agricultural credit is a point which we will subsequently examine. Meanwhile, it is clear that at the primary base of that credit also reside its primary defects as a system of rural finance ".

24. Dealing with co-operative banks the Report emphasised the following unsatisfactory features of their operations :

(a) In some States the business of individual members accounts for a large proportion of the advances made by the banks. There is general evidence of propensity for doing business with individual borrowers, very often traders, in preference to co-operatives. The Report ascribed this tendency to the preponderance of urban elements in the Board of Directors;

(b) Some banks undertook trading activities during the war and post-war periods. The general experience has not been happy, and some of the banks suffered serious losses;

(c) The percentage of overdues from societies was very high in many States;

(d) There were bad and doubtful debts of an appreciable order in some of the States; and

(e) In general, the staffs employed by central banks are ill-equipped for their duties and quite often inadequate for the volume of the task they have to discharge.

25. In our opinion the following judgement pronounced in the Rural Credit Survey Report of India is equally applicable to co-operative credit in Pakistan :

" It is generally recognised that the development of the co-operative credit movement in India has been inadequate in three important respects. There are large parts of the country which it has hitherto not covered ; even in those areas to which it has extended, there are large sections of the agricultural population which still remain outside its membership ; and even if attention is confined to those who are members of co-operative credit societies, the large bulk of their credit requirements is met from sources other than co-operative. What is not as widely recognised is that the magnitude of this threefold inadequacy is such as to warrant, from the quantitative as distinguished from the qualitative aspect, only one judgement, namely ' failure ', on the fifty-year record of the co-operative credit agency in this country. The data of the Survey confirm that no other description of the record would be appropriate. "

This judgement has been formed on the evidence of a careful and fairly extensive survey in India, where co-operative credit has shown considerable extension since partition. It is probable that, if a survey were carried out in this country an even more unfavourable judgement would have to be pronounced. This does not mean that the co-operative department has no achievements to its credit. It has served the country in some respects, in particular at the time of partition, but in Pakistan both in quantity and quality it has fallen very short of what was needed.

26. This failure is attributable in a large measure to the social and economic environment in which co-operatives have to function : poverty, widespread illiteracy, uneconomic land holdings, lack of business experience, violent price fluctuations, village factions, petty official exploitation and official high-handedness, domination of co-operative institutions by powerful individuals and urban interests, reluctance of members to deal impartially and scrupulously with their friends and neighbours, the large magnitude of overdues, and so on.

27. Other causes also have been cited which originate in the organisation and structure of co-operatives :

(a) The extremely small size of village societies, which prevents effective and profitable management;

(b) Failure of the movement to take the individual as a whole ; undue concentration on credit to the exclusion of other requirements of the villagers;

(c) Undue reliance on honorary services for day-to-day work;

(d) Inadequacy of staff both in quality and quantity, and inadequate arrangements for training;

(e) The general adoption of the principle of unlimited liability;

(f) The indifference of district co-operative banks to the needs and view-points of primary societies;

(g) Diversion of funds and energies to commercial business with non-members; and

(h) Inadequate interest shown by the State in co-operation, which has allowed it to acquire the status of a mere departmental activity conducted on a routine basis by a corps of officials, most of them well-intentioned and very sincerely devoted to their duties but inadequately and indifferently inspired and led from the top. The emphasis of the Government has been on organisation, inspection and control, while the need has been for leadership and guidance to secure the performance of economic functions and the solution of sociological problems. In this connection it is worth mentioning that the vigorous development of rural credit in the Punjab prior to partition was attributable largely to the leadership provided by a series of extraordinarily able registrars, who were kept in their posts for fairly long periods. It is deserving of mention that the Royal Commission on Agriculture in India (1928) recommended that the ablest officer should be chosen for appointment as registrar, and that no registrar should be shifted from his post until he had done a minimum of 5 years.

### Government and cooperatives

28. We have given a brief account of the agencies which have functioned hitherto in one way or another for supplying rural credit. Their past performance and present position have been reviewed briefly with a view to judging their future potential. As is usually necessary, the problem has to be viewed in its short and long-term aspects. We deal first with the latter aspect.

29. We have no doubt that, whatever the weaknesses and shortcomings of co-operatives, the right policy is to develop them as the main ultimate agency for providing rura credit. Although it may be argued that co-operation has failed, it must nevertheless be our resolve to make it succeed. As has been rightly said, if co-operation is lost the most hopeful means of rural reconstruction and development will be lost. But co-operation does not provide an effective solution in the immediate future. Co-operation is a form of economic organisation in which men of small means are able to help themselves individually by helping each other, thereby realising the benefits of a larger-scale organisation. It embodies social and moral values of the highest consequence to the community, provided it is developed on the right lines as a movement, and not merely as a departmental activity. The economic needs of the rural population can be met either commercially through individual businessmen, money-lenders and companies, or administratively by the Government, or co-operatively by the people themselves, with necessary support from the Government. Neither the commercial nor the administrative approach is satisfactory because either will tend to inhibit initiative, self-confidence, self-reliance, and qualities of leadership among the people, qualities which a democratic society must encourage and promote.

30. We recommend that the Central and Provincial Governments should make a clear public announcement of their firm resolve to develop co-operation in the country as the most effective means to enable men and women of small means to organise themselves for fulfilling their economic needs, particularly in rural areas.

31. In the sphere of credit especially we see no wholly satisfactory substitute for co-operatives as the ultimate objective. A rural credit organisation has to function in an unfavourable socio-economic environment and has to deal with millions of cultivators, each of whom presents greater problems of technique and supervision than the most difficult client in the urban sector of the economy. Overlooking the claims of co-operation based on its potential in moral and social terms and judging it purely from the point of view of its effectiveness for supplying credit, we can conceive of a satisfactory rural credit organisation in which provincial and district co-operative banks do not feature ; but it is impossible to think of an effective substitute for primary village societies. No credit organisation can be built except at a prohibitive cost to serve the millions of small men in villages, unless they themselves assist it by forming local associations. For a purely commercial agency the magnitude of the job is too great and agricultural credit has to be subsidised. For a purely Government agency also the job is too great, without the organised support of the local people, doing their best to help themselves. The best form in which they can organise themselves is the co-operative. The problem thus is how the primary village societies can be made effective. As we have shown above, the co-operative organisation has weak foundations and needs reform, consolidation and rehabilitation. It is unfortunate that it is the primary village societies which are the weakest part of a weak organisation, and receive inadequate attention.

32. We believe that the country is entering an era in which the conditions will be more favourable for rehabilitating the co-operative movement. The Government are undertaking programmes for bringing about a change in the social and economic environment of the rural areas through Village AID, agricultural extension, improvement of education and medical facilities, extension of radio broadcast services, etc. This is the most favourable opportunity for formulating a dynamic programme for rehabilitating co-operation.

### *Co-operative survey groups*

33. We believe firmly that the movement must for some time to come be assisted, influenced, supervised, and controlled by the Government as a part of the rural development programme. It must improve and advance in unison with the other parts of the programme

particularly Village AID. We suggest that two or three co-operative planning groups should be formed in each Province under an officer of the Civil Service experienced in rural problems. He should, if necessary, be given a course of training in co-operation and credit. He should be assisted by a senior co-operative officer, a representative of the State Bank of Pakistan, a representative of the Provincial Co-operative Bank and a co-operative accountant. These teams should take up the Village AID Project areas and work under the general supervision of the district officer concerned. They should examine and analyse the present position of all co-operative societies, including the district banks. They should classify the societies in the following three grades :

(a) Societies which are functioning fairly satisfactorily. Measures for extending and intensifying their activities should be considered and introduced ;

(b) Societies which can be rehabilitated with reasonable financial and staff assistance from the Government. The planning groups should consider and recommend the assistance required ; and

(c) Societies which appear to be incapable of rehabilitation. Measures to close them should be considered and recommended to the Government. Loans due from persons who have capacity to repay should be transferred to the Revenue Department for recovery. Efforts should be made to recover other loans in easy instalments, though some may have to be written off.

Measures to form new societies should be recommended for the consideration of the district officer. These surveys should be easy to make, and will not take long.

34. The reports of these co-operative planning groups should form the starting point for the rehabilitation of co-operation by the Government. It would be helpful if they first took up an area where co-operatives were known to be markedly successful. The rehabilitation programme should include where necessary (a) an increase in the size of the primary society, (b) extension of operations both in variety and volume, and (c) appointment of new staff at the expense of the State. The first two or three planning surveys should serve as laboratory attempts, which are likely to confront the parties with special problems; they should be given the help and guidance of a high-level committee consisting of (a) the Governor or Deputy Governor of the State Bank, (b) a senior official of the Planning Board, (c) the Co-operation and Marketing Adviser to the Government of Pakistan, (d) the Registrar of Co-operative Societies of the Province, and (e) any other officer whom the Provincial Government may like to appoint, such as a senior administrative officer with special knowledge and experience of rural co-operative problems. The Survey should be carried out thoroughly with quality, not speed, as the objective, in order to lay the foundations for a general measure of reform and consolidation.

35. A serious and well-organised effort somewhat on the lines we have suggested is necessary for providing a favourable administrative environment for co-operation. It would be a proof of the seriousness of purpose on the part of Central and Provincial Governments towards co-operation. They must get down to the field of operations with the highest resources of knowledge, outlook, vision, and earnestness they can command, in order to find a solution to the problems of co-operation.

### *Agricultural Bank*

36. We recommend that the measures suggested above for rehabilitating co-operation should be re-enforced by creating a high level organisation in the form of a rural bank at the Centre which would have short-term as well as long-term targets in view. The State Bank has formulated a scheme for establishing an Agricultural Bank, to which we extend our support. We outline below our own views about the position this Bank should occupy, the role it should play, and the functions it should perform.

37. The rural credit organisation of the country needs a life-radiating nerve centre, from which initiative and energy should flow to all its outlying parts. The proposed Agricultural Bank should first play this role by providing leadership, guidance, enterprise, fresh ideas and technical knowledge at the higher level. It should act as the spokesman of the entire rural credit organisation in the country, and represent its needs to the ministries of the Central Government, and in centres of the money market. It should arrange research with a view to increasing the coverage, quality and effectiveness of the credit organisation to enable it to make its highest contribution to the general effort for rural development.

38. This Bank should not be regarded as a parallel or a rival to the co-operative credit agency. No rural credit organisation can be built except on the foundation of village associations, and one of the main purposes of the Agricultural Bank must be to participate effectively in the programme for rehabilitating and supporting the co-operative agency. More particularly it should :

(a) Extend the fullest support to those primary co-operative societies which are functioning, or can be made to function, effectively. This support can be extended direct or through co-operative banks ;

(b) Lend its help in collaboration with other rural development agencies operating in the field in the promotion of village societies, where necessary ;

(c) Assist in the formation and operation of institutions for the purpose of training officers of the agricultural banking system and for giving special credit training to co-operative officials ;

(d) Study the needs of the co-operative agency, and devise means for meeting them so far as necessary at the Central level ;

(e) Make arrangements for meeting all genuine requirements of funds of the co-operative credit agency for co-operative purposes ; and

(f) Publish periodical reviews on the performance of co-operative agencies.

39. This will not exhaust the constructive role of the Bank. It will have important functions to perform in the immediate future ; or at least as soon as it can, to supply the needed credit where the co-operatives are not able to do so. The Agricultural Bank should establish banking offices in areas where co-operative banks do not exist and should do its utmost to develop them as models for the promotion of village societies and their lending operations. There are many areas in East and West Pakistan where a co-operative agency does not exist, or does not function effectively. The Agricultural Bank should promote village associations and societies in such areas, in collaboration with other operating rural agencies, and develop them as models. For this and other purposes it will be necessary for the Agricultural Bank to establish offices at the provincial capitals and other suitable centres. These offices need not be large, because it would not be their aim to compete in ordinary commercial banking business. We are of the view that this Bank should not participate in ordinary banking business, which being relatively easy and attractive, would deflect its attention and energy from its real task.

40. The Agricultural Bank should plan its organisation and operations with extreme care in the light of the following principles :

(a) Its organisation must not lead to any duplication of agencies ;

(b) The good-will and co-operation of the co-operative agency and other rural development agencies must be ensured. The Agricultural Bank can function usefully only if it succeeds in establishing a basis of full collaboration with other agencies, the most important of which are the Co-operative Department, Village AID, and the Provincial Agriculture and other rural Departments ; and

(c) The Bank must proceed steadily, measuring carefully every step which it takes. It must be appreciated that the failure of other agencies is not due to structural or organisational shortcomings only, though these have made their contribution. The failure is due essentially to the socio-economic environment of rural areas, to which adequate attention was not paid. It would be unrealistic to think that the Agricultural Bank will not encounter the same difficulties. Its main assets must be :

(*i*) efficient management and supervision; (*ii*) a strong but flexible structure ; (*iii*) good technical knowledge and guidance supported by efficient agencies, and, above all ; (*iv*) its fixity of purpose and determination not to be deflected from its main task of promoting, supporting and financing the primary societies in genuine agricultural and other operations, and of extending credit to farmers.

Failure will do greater damage than slowness and must be prevented. Successful operations even on a limited scale will show the way to others and will do immense good. The Bank can promote rural credit more by inspiring example than by extensive operations over the entire field.

41. It is extremely important that the Agricultural Bank should have maximum support and guidance in developing its policies and operations. Its progress must not be hindered by dilatory methods of business, which will kill it at its very birth. For this purpose we strongly suggest that its integration with the State Bank must be accepted as an essential feature of its structure. It should be viewed as an extension of the central banking organisation, which will confer upon it (a) the prestige of the State Bank and its full support ; (b) the benefits of short and medium-term accommodation on the basis of ready appreciation of its needs ; (c) support of the money market ; and (d) the advantages of sharing the staff resources and research facilities of the State Bank. The State Bank has devoted a great deal of thought to the problems of rural credit, the benefit of which would be lost if the Agricultural Bank were viewed as a wholly separate and independent organisation. We certainly deem it necessary that the Bank should have a separate organisational identity. A high-level agency of this type is needed to devote its full time and attention to the problems of rural credit. But separation should not be so interpreted and extended as to lose for the Agricultural Bank the values which structural connection with the State Bank will ensure.

42. We consider that the Governor of the State Bank should be the permanent president of the Agricultural Bank with a legal provision that the Managing Director will perform his duties and exercise his power under the general supervision and control of the President. This legal provision may be reinforced by suitable administrative arrangements to bring about the needed degree of integration.

43. The State Bank is responsible for seeing that the short-term credit requirements of the country are satisfactorily met. It has recently been empowered to grant medium-term accommodation also for agriculture. Agriculture with its various branches, including fisheries, forestry and animal husbandry, constitutes the main productive sector of the country's economy and the largest source of national income. In this sub-continent the Central Bank has been rightly regarded as responsible in a very special degree for rural credit. We consider that this responsibility should not be impaired in any way, and should be maintained intact, even while recognising the need of a separate organisation such as an Agricultural Bank.

44. The State Bank, with all its resources of knowledge, staff, and prestige, must underwrite the Agricultural Bank. Instructions of the Government intended for the Agricultural Bank should be issued through the State Bank.

### *Provincial and district rural credit officers*

45. The Agricultural Bank should plan to establish its representatives at the Provincial capitals and district headquarters. These provincial rural credit officers should act as staff officers of the Provincial Development Commissioner. Their functions should be :

(a) To participate in the preparation of annual programmes of development ;
(b) To prepare provincial rural credit programmes as a part of the provincial development programmes setting out the requirements, the agencies responsible and the sources from which the needed funds will be provided ;
(c) To review progress periodically, and submit reports to the Agricultural Bank ; and
(d) To perform all the duties assigned to them as the Provincial representatives of the Agricultural Bank.

The preparation of annual programmes of co-operative and rural credit development will be one of the important functions of the Provincial Government. These programmes should be communicated to the district officers for implementation, because they will have under their operational control representatives of all the technical departments, including the co-operative department.

46. In due course the Agricultural Bank should appoint representatives at the district headquarters, with functions *vis-a-vis* the district officers and their areas similar to those of provincial representatives *vis-a-vis* the Provincial Development Commissioner. These officers must be fully trained and have a few years' experience before they are appointed to the districts. They should also be trained in the principles of co-operation, its history, problems and techniques, as also in credit and agriculture production. We realise that it will take time to build a cadre of such officers, and that it will be extremely difficult to find men for occupying senior positions. It should, however, be possible to find a few suitable experienced men from the banks, co-operative institutions, and other sources, who could after suitable training fulfil the needs of the new Agricultural Bank.

### *Co-operative banks*

47. The co-operative banks are in many cases in need of rehabilitation, though not as much as primary village societies. Many of them have developed trade with non-members, and find that if they give it up they will be unable to employ their funds sufficiently profitably to meet their expenses. Co-operative banks, at least in West Pakistan, are generally not short of funds, for co-operative operations on an ordinary scale, but find these operations more difficult to plan, supervise and conduct, and less attractive than commercial operations. In general, their staff is not adequate in size or quality for developing co-operative operations. As we have observed above, the crux of the problem of rehabilitating co-operation lies in primary village societies. The battle of co-operation will be won when the village co-operatives begin to perform their functions satisfactorily, whether they are financed by co-operative banks, the Agricultural Bank, or from other sources. We are inclined to think that the complexity of the problems presented by primary societies has transformed the co-operative banks in a considerable measure into banking institutions engaged on operations which a commercial bank could conveniently manage. We consider that clear and firm policies are needed to re-orient the co-operative banks, and to prepare them for their main, though far more difficult, task of rural finance. We make the following suggestions :

(a) The co-operative banking system should be changed into a branch banking system like that introduced in the former North-West Frontier Province. It is not, of course, necessary that there should be only one branch banking institution in the whole of West or East Pakistan ;

(b) The Management Boards of the banks should be organised to include representatives of the State Bank, the proposed Agricultural Bank, and the Provincial and Central Governments in order to promote a combined effort with all available resources to rehabilitate co-operative banking for its main duty ;

(c) If necessary, the State Bank should provide some capital to the banks ; this will be specially needed in East Pakistan ;

(d) The Provincial Governments should, in our view, prohibit commercial banking by co-operative banks. In important towns where there is no branch of a commercial bank, the prohibition should take effect from a date on which such a branch is established. Steps should be taken to arrange for such a branch to be established as soon as possible. If a co-operative bank is so deeply involved in commercial banking that it has for all practical purposes become a commercial bank, it should be required to become such a bank in form, and the protection of co-operation law should be withdrawn from it ; and

(e) The Agricultural Bank, in close co-operation with the Village AID and extension staff, should, as an experiment, explore the feasibility of basing agricultural loans on relatively simple production plans and estimation of expected income. The objectives would be to test the possibility of such a process as a means of providing a more flexible yet reliable basis of security. This will also help find out whether the credit is being channelled into the most productive uses and also whether the loans are being used in a manner consistent with the purposes for which they are extended to the cultivators. Such a process would seem to be especially desirable where the intention is to promote changes and improvements in production and production methods.

48. Some of these suggestions are open to the criticism that they involve a departure from the principle of true co-operation and further that they would be resisted by the district co-operative banks. We trust that the district banks will be persuaded or pressed to yield in the interests of co-operation itself. Their re-organisation on a branch banking basis is suggested in order that their resources should be improved and mobilised for rehabilitating co-operation at the field level with singleness of purpose and administrative determination. Co-operation will survive and prosper for the welfare of the people only if it functions at the village level, deals with the task effectively at that level, and inspires confidence. Re-organisation on these lines would make it easy for the Agricultural Bank to extend its operations rapidly through the co-operative agency. When co-operation has been restored and rehabilitated and has acquired a strong and stable structure, the co-operative banks, if considered necessary, can be decentralised, though we do not consider this essential. So far as agricultural finance or even other types of co-operative finance are concerned, co-operative banks today preserve the form but not the real essence of co-operation.

### Official responsibility

49. Here we might with advantage discuss briefly the problem of official responsibility for and control of co-operation, which is said to involve a departure from the principle of voluntary co-operation. There is quite justifiably a school of thought advocating the removal of official control which in its view is inimical to the development of a genuine co-operative movement. The other view is that without regulation, control and encouragement by the Government, co-operation cannot last, much less can it prosper and flourish. The advocates of the withdrawal of official control are influenced by the successful development of co-operation in some Western countries as a largely non-official private enterprise. Some of these countries present magnificent examples of a co-operative movement sponsored, managed and run by the people themselves, the Government being responsible for registration and education only.

50. While this is true, one must not forget the genesis of co-operation in this country, its past history, and the problems which it has faced and which continue to confront it. Co-operation has not been a movement but a State policy pursued by departmental action, which paradoxically has been inadequately supported by the Government itself in actual execution. The State has done little more than establish a department with a hierarchy of officials, and leave it there to do as best it could. The movement showed signs of rapid development in the early years, but the Maclagan Committee in 1915 found that there was a lack of " true co-operation ". The Royal Commission on Agriculture in India (1928) observed that, while the movement had resulted in useful work on local problems in some areas, there was generally a lack of understanding of the principles of co-operation, and that loans had been embarked upon which had led to disaster. It also found that there was reluctance to take action against defaulters or to liquidate societies which were beyond remedy. Quite rightly from the very outset it was recognised that the movement would need some degree of official guidance and control, but with the example of Western countries in mind these were kept within moderate limits. The control was, however, increased and extended as difficulties appeared and the inability of the non-official element to discharge its responsibility became more and more apparent, leading to loss of confidence and creating a danger of collapse.

51. The Co-operative Planning Committee (1946) observed that " the expansion of the movement was rapid till 1929, when the depression set in and the various defects, which had been noticed by the Maclagan Committee but were partly obscured during the period of rising prices and prosperity, became prominent ". The movement received a set-back with the slump in agricultural prices and consequent decline in the income of the farmer during the depression which began in 1929. A number of committees of inquiry were appointed in different provinces and states to suggest ways and means of reconstructing the movement, and consolidation, rectification and rehabilitation of the movement rather than expansion leading to an increase in official control were the predominant features of this period.

52. Official control was increased and made effective as a result of experience gained over a quarter of a century, and all committees that have reported in the recent past have emphasised the need for more rather than less leadership, guidance and assistance by the State. The Pakistan Agricultural Inquiry Committee (1952) recommended the creation of a streamlined co-operative organisation by a positive recognition of the responsibilities of the Government and suggested the appointment of official secretaries for co-operative societies. The Expert Committee presided over by Mr. Akhtar Hussain recognised that the movement even after 50 years had not become popular, and lent its support to the proposals of the Agricultural Inquiry Committee.

53. It would be perilous to disregard the fundamental difficulties of co-operation in this country, which have been brought home and high-lighted by the costly experience of the last 50 years. A series of high-level committees and many eminent men of wide experience have analysed the problem and indicated the line of future policy and action. In the present social and economic conditions, characterised by poverty and lack of education, it would be dangerous complacency to plan for the withdrawal of governmental responsibility and control in any foreseeable future. In under-developed countries the State has frequently to assume responsibility for activities which in other countries are left wholly to private enterprise. Co-operation must in our view remain the responsibility of the Government until the social and economic conditions of the country as a whole, and of rural areas in particular, undergo a radical transformation. It should not be necessary to repeat mistakes and buy the same experience over and over again.

54. In our view the question in Pakistan is not one of transferring the responsibility of Government to non-officials but one of providing an inspiring leadership to the official control machinery and to lift it up to a higher ideal of dynamic service with a missionary purpose. The present position is one which must cause anxiety to all people interested in co-operation. Speaking generally, the non-official elements, for a variety of reasons, are unable to manage the primary societies efficiently, though in law and theory, they are responsible for management. In actual fact decisions are taken directly or indirectly by the officials who are not responsible under the law. Thus the non-officials are responsible but do not exercise the power which in law rests with them ; the officials exercise the power but are not responsible for their actions. The official machinery receives insufficient encouragement and inspiration from political and administrative leadership, with the result that the so-called co-operative movement is managed and led without much vision, outlook and understanding. The recommendation of the Royal Commission on Agriculture in India (1928), that selections for the posts of registrar should be made from amongst the ablest officers available, and that those who are selected should be kept in their posts for at least five years, seems to have received little attention since partition. Co-operation has been reduced to the level of an activity conducted under a routine which inhibits vision, kills initiative, and obscures all sense of purpose. It should not, therefore, surprise anyone that in spite of repeated inquiries and investigations at the highest level there is scarcely any perceptible improvement in the situation. Many of those who are anxious for rapid development of the country's physical and human resources are turning their thoughts to other ways of approach in the search for a substitute. They are inclined to think that co-operation cannot fulfil the needs, and should be by-passed. The official machinery, including the non-official beneficiaries of the present system, motivated by the natural instinct of self-preservation, finds it difficult to take an objective view of its shortcomings and of the highly important tasks which it must shoulder in the dynamic programme of national development.

55. Perhaps we should emphasise the commonplace truth that time is precious and there have been enough inquiries and investigations. The leadership of the country at the highest political and administrative levels should give its attention immediately to the question of introducing a dynamic quality into the co-operative movement. We accordingly recommend that a conference be called by the Prime Minister to be attended by the Chief Ministers of Provinces, Ministers responsible for co-operation and a few selected non-official leaders of the movement. This conference should be required to outline the measures needed for the reform, consolidation and rehabilitation of the co-operative movement in the country, and for putting these measures into action. One of the matters on which this conference might advise would be the question of employing full-time paid managers, especially for the larger co-operatives proposed ; the salaries of these managers might be paid, at any rate initially, by the Government, as an effective means to assist the development of the co-operative movement. The time is opportune for taking this step as a part of the programme for rural and agricultural development which the Central and Provincial Governments have taken in hand. By the time this conference is summoned some of the proposals we make, as matters requiring urgent attention, will no doubt be in train. The conference could, however, provide guidance and leadership on all questions, in particular those in which sharp differences of view prevail and enable the Provincial Governmets to move forward with confidence.

## SHORT-TERM MEASURES

56. So far we have dealt with the long-range approach to the problem of co-operation. The fruits of the rehabilitation programme for co-operation will not materialise in any appreciable measure during the Plan period ; little more can be expected than to lay the foundations of a sound and vigorous co-operative activity, which will yield beneficial

results in course of time. Even the Agricultural Bank will need time to construct its organisation and put its staff in position. We have emphasised above that, in view of the complexity of the problem of establishing the Bank and extending its programme and operations, quality should not be sacrificed to speed. But some measures are necessary to provide rural credit to assist in the programme of rural and agricultural development in the Plan period.

57. In the first place, we recommend that programmes of government loans (*taccavi*) should be extended and intensified. We are aware of the arguments against the *taccavi* system. Advances are not planned properly, they do not reach the cultivator at the proper time, their amounts are inadequate ; they encounter delays and difficulties which characterise all programmes carried out bureaucratically ; the sanctioned amounts do not reach the recipients intact, and so on. Despite all these defects, some of which can be remedied, *taccavi* offers immediate possibilities of extending production credit to some extent at least in West Pakistan. This agency should be used as far as possible until other agencies develop. We make the following recommendations :

(*a*) A minimum annual amount for each district or other smaller area, if possible, should be fixed for the Plan period. Larger amounts might be allowed for the Village AID areas, and in other areas where necessary, in any year on the basis of proved need, but plans should always be ready before the commencement of a year on the basis of minimum figures. Programmes should be sanctioned by the Provincial Governments in April immediately after the Budgets have been approved by the legislatures;

(*b*) The dates on which the advances must be paid to the recipients should be fixed for each harvest;

(*c*) The purpose of individual advances should be specified.

(*d*) The revenue officials, including sub-divisional and district officers, should in the course of their tours verify personally, in a few cases selected at random, whether the advances have been used for the purpose for which they have been sanctioned;

(*e*) Short-term loans should be paid largely in kind (seed, fertilisers, etc.) which would check abuse. Medium-term loans should cover only a proportion of the investment involved depending on the resources of the borrower; and

(*f*) The standard of recoveries should be improved.

58. A set of principles should be drawn up for the guidance of district officers. As payments and recoveries will be concentrated during certain periods of the year, additional staff should not be necessary on any appreciable scale, though there need be no hesitation to recruit such staff where really necessary. We feel that immediate intensification of *taccvai* programmes on a planned basis will go some way to convince the rural population of the determination of the Government to help them in improving their conditions of living.

59. In East Pakistan, the revenue collecting machinery is only now being established with the elimination of intermediaries and acquisition of land by the State. For several years in its immature state, it would be unwise to use it for the disbursement and recovery of Government loans. East Pakistan has a tradition of Government loans paid out to relieve distress, but the proportion of recoveries is very low, which would be fatal to a production loans programme. The short-term problem thus presents even greater difficulties in East Pakistan than in West Pakistan.

60. The co-operative societies which are known to be performing their duties with reasonable efficiency should be assisted to improve and expand their programme to the utmost. Full-scale assistance to good societies should operate as a positive encouragement to the co-operative movement as a whole, and furnish it with an incentive to put its

house in order. Other societies which can be rehabilitated quickly should be placed in a separate category, in order that they may be reorganised and used effectively as early as possible.

61. We have no doubt that the Agricultural Bank will do all it can to make itself effective by establishing its offices wherever they are most needed.

62. We need not emphasise that the Village AID areas should receive early and special attention. Efforts to rehabilitate co-operatives, to intensify government loans programmes, and to extend the operations of the Agricultural Bank hold out a high promise of success in the Village AID areas.

63. It is probable that in the immediate future the intensification of all feasible programmes will result in greater attention being paid to the man with larger means, whether he is a cultivator or a land-owner. This need not inhibit the introduction and expansion of rural credit programmes ; they will have a wholesome effect on rural areas, assist production, and carry a general message of hope. The ultimate aim is to bring the small man within the scope of rural credit activities, and when this is achieved success will be complete.

64. As we have already shown, the Agricultural Development Finance Corporation has not made any impression on the credit situation in the country. The number of individuals or concerns it has been able to serve and the amount of credit it has disbursed in a period of nearly four years are too small to be of much consequence. Its organisation and structure are such that it cannot perform the tremendous task of meeting the requirements of millions of men in the villages. Its clients are necessarily men of large means, who would not ordinarily find themselves wholly without resources. Because of its lack of contact with the field, it can develop its operations on the basis of land-mortgages only, and situated as its offices are, much time must be spent on completing the preliminaries prior to actual disbursements. In addition, it has been handicapped by the lack of the agricultural equipment needed by its clients.

65. We consider that one institution should be made responsible for rural credit policies, programmes, research and leadership at the national level. The Agricultural Development Finance Corporation should be merged in the Agricultural Bank as soon as the main office of the latter has been established. It should become the long-term rural credit department of the Agricultural Bank with its own capital as well as its own accounts and balance-sheets. During the next few years, short and medium-term loans should have priority to support Village AID and general agricultural development programmes. But there will be need for long-term loan operations for improvement of land, such as tube-wells, percolation wells, irrigation structures, conservation works, fruit plantations and so on. A beginning should be made, though in the immediate future because of the inadequacy of organisation, long-term credit will have to be limited to certain carefully specified purposes, such as wells and irrigation structures.

66. Long-term credit will be specially needed in new areas, but rural credit for them will have to be an integral part of colonisation operations. We have recommended elsewhere that semi-autonomous authorities should be established for well-defined areas to speed up the colonisation of areas newly brought under cultivation, with responsibility for all colonisation services, including the provision of rural credit and extension services. The programmes of the Agricultural Bank, including the promotion of co-operative societies, should be organised under well-trained staff in such areas, to take over in due course rural credit operations from the colonisation authorities.

**Warehousing**

67. Warehousing facilities are essential to the development of an orderly credit and marketing programme. We suggest that a joint stock corporation be established as a subsidiary to the Agricultural Bank to plan, design, finance and construct warehouses

wherever they are needed. It would be a long-term programme requiring careful planning prior to execution. The Warehousing Corporation should work out standard designs for different parts of the country. A rehabilitated co-operative agency will be able to lease the warehouses from the Warehousing Corporation on rent. No scheme has been prepared for setting up the Corporation, and we suggest that the question should receive early consideration.

### Relief in special circumstances

68. Agriculture, unlike industry, is dependent on weather and other natural conditions. A strict programme of recovery, on the analogy of industrial and commercial loans, regardless of the conditions affecting the returns to the cultivator would be unrealistic. Failure to take into account actual circumstances attendant on production and market prices would add to distress in the rural areas and make the credit agency unpopular and ineffective. The rural credit programme is not a mere credit programme of a technical nature. It is a part of the general social and economic programme of development and must take full cognisance of the shifting fortunes of the borrowers in a spirit of partnership. In some years, due to causes beyond the control of the cultivators the yields may be very low or the crops may be damaged or substantially lost. Failures of rains, in quantity or time, or floods can seriously reduce the capacity of the borrowers to repay their loans. It should be possible after making necessary investigations, which should be carried out carefully in collaboration with all the rural agencies in the field, to postpone the recovery or to remit the loan in part or in full. This question needs a careful study with a view to the creation of funds by various agencies to bear the costs of partial or complete remissions.

## TECHNICAL PROBLEMS

69. There are a number of technical problems in connection with co-operation on which clear guidance will have to be furnished by Government in the course of rehabilitating the co-operative credit organisation. There are strong differences of expert opinion on every such problem, and clear direction from the Government is necessary. We feel that all such problems should receive consideration in the light of available information and experience. All committees which have reported on co-operation in the recent past have dealt with these problems, and it would be necessary to bear in mind the views that have been expressed by them. It is likely that variations will be needed according to local conditions and that rigidity would be harmful. We mention a few examples of such problems here to invite attention to them.

### Limited and unlimited liability

70. Co-operation has in general adhered to the original co-operative principle of unlimited liability, but the view has frequently been advanced that it is hindering the progress of the movement. Possibly a flexible policy might be adopted in this matter.

### Size of co-operatives

71. It has been argued with good reason that co-operative societies of small size do not lend themselves to efficient management, because of their limited operations and inadequacy of financial and staff resources. Perhaps co-operative societies located at *mandis* (Hat towns) with sub-units in villages would offer a solution. For credit operations especially it is essential that the members should know one another intimately, because advances must be based on " character " more than on conventional security.

### Amount of loans

72. It should be possible to prepare schedules showing the standard amounts of loans based on area, soil, crop, manure needed, price of improved seeds, etc.

Ordinarily short and medium-term loans should be available for :

(*a*) Fertilisers;
(*b*) Materials and simple equipment needed for plant protection;
(*c*) Improved seeds;
(*d*) Consumption needs of the cultivator between harvests ;
(*e*) Draught animals;
(*f*) Farm equipment; and
(*g*) Materials needed for house repairs or reconstruction after damage, when purchasable only from outside the local area.

The amounts to be advanced should be standardised as far as possible. Even for digging wells and making irrigation structures some degree of standardisation should be feasible.

### Sources of working funds

73. We believe that in several parts of the country co-operative banks have funds which could be utilised in a larger measure for production and marketing. Co-operative banks command sizeable resources, which are being used for commercial operations. A rehabilitated co-operative credit agency can render a valuable service by the promotion and mobilisation of savings. " Better Living " societies, of which a good example has been set by the former Punjab, can help discourage needless ceremonial expenditure and encourage thrift, which will result in productive savings. The sources in the immediate future in addition to co-operative banks would be the State Bank and the Central and Provincial Governments. Until the co-operative societies and the Agricultural Bank are able to function effectively, the State, including the State Bank, would be the main source. The State Bank can, however, supplement the resources even more than it has done in the past by extending support to the co-operative agency to the maximum limits of reasonably safe and genuine use, and by promoting the Agricultural Bank.

### Single, dual and multi-purpose societies

74. In recent years, perhaps under the influence of views expressed by the Co-operative Planning Committee (1946), there has been a marked tendency towards multi-purpose co-operative societies. The experience of such societies should be watched and kept under review. Efficiency of management must be a greater problem for multi-purpose than for single-purpose societies. The desirability of concentrating on dual-purpose societies for credit and marketing needs to be examined.

### Survey of rural credit problems

75. A credit survey on a sample basis should be attempted within the next few years to obtain reliable information about the sources at present in use, the prevailing rates of interest, credit requirements, present and prospective, the part played by various agencies, and so on. We believe that a sample survey would provide sufficiently reliable information to form the basis of State policies.

### Steps in rural credit programme

76. There are two major steps which need to be taken simultaneously in developing an effective rural credit system. The first is to improve and consolidate existing co-operatives which are not beyond remedy, and to organise effective new ones. The second is to establish the Agricultural Bank to serve as the nerve centre of the rural credit organisation and to help, guide and support all other rural credit institutions, to help promote new institutions, to deal directly with cultivators where no intermediate institution is available, to promote and conduct research, to develop training facilities, and generally to inspire the rural credit agencies with a sense of mission.

77. One of the first steps to be taken to establish a rural credit system would be to study the existing co-operatives to determine which of them are running satisfactorily at present, or could be transformed into satisfactory co-operatives or sub-units of other co-operatives. Those not so qualifying should be liquidated as expeditiously as possible, it being borne in mind that the intention is to establish co-operative units or sub-units that will function effectively.

78. We suggest that in general the credit programme should grow side by side with, and almost as part of, the Village AID programme. This means that there must be training programmes for co-operative managers and district rural credit officers paralleling those for village workers and specialists. If there are co-operatives already operating in these areas, they are likely to be small and should be absorbed as sub-units of larger co-operatives. Managers of existing co-operatives should be considered as candidates for the training schools.

79. In all these types of farming areas where co-operatives are being started, a careful analysis of marketing should be made by the Co-operative and Marketing Departments before co-operatives are set up. This will be more important in the more diversified farming areas. Decisions will have to be made whether to have different co-operatives for different products, or a single co-operative for a combination of products ; the latter will probably be more desirable. It will be specially important to work out the procedures to be followed in the organisation and management of co-operatives handling combinations of products, and to embody these procedures in manuals of instruction, after they have been tested in actual operations.

80. The Agricultural Bank should be started immediately. The Agricultural Development Finance Corporation should become a part of the Bank as soon as possible.

81. As soon as possible, small groups in the State Bank and later in the Agricultural Bank should start working on :

(*a*) National lending policies;

(*b*) Establishing training schools for co-operative managers and rural credit officers;

(*c*) Analysis of the rural areas to be served; and

(*d*) Legal problems of rural credit.

82. The biggest challenge to the new banks will be to build cadres of trained staff, and to establish good relations with the co-operative banks and the Provincial Government departments concerned with rural development.

83. The co-operative system should give first priority to the provision of productive credit to cultivators and to providing requirements for production through supply stores. Next in emphasis should come assistance to the cultivators in marketing their products ; included here would be the storage or warehousing services that would be combined with

production and marketing credit. Then the co-operatives could begin to provide through the agricultural supply stores the commonly required items of consumption. Once the co-operatives had succeeded in meeting these basic needs of the rural people, thought could be given by them to the provision of any other requirements indicated by local conditions. Examples of what might be provided are tractor stations, artificial insemination depots, assistance to village industries and so on.

84. The programme should be worked out with extreme care. It must take account of the difficulties and obstacles which co-operation has faced in the past.

85. In conclusion, we wish to sound a note of warning that in the near future we see little possibility of meeting more than a fraction of rural credit requirements. Our attempt must be to make our achievements as solid as possible in terms of laying sound foundations for the future and making as effective a use as possible for such institutions as may be available. In doing so we must take care to ensure that in our natural desire to extend our activities in the near future we do not repeat past mistakes, which must lead to failures and eventually do harm to future development.

### Allocation of funds for the rural credit programme

86. A provision of 95.2 million rupees has been made in the plan for extending loans and for training and administrative costs.

## Chapter 16

# LAND REFORMS

## INTRODUCTORY

1. Under Land Reforms we include all measures designed to readjust the rights, obligations, and arrangements connected with the ownership and use of land with a view to greater productivity, higher living standards, and improved social status and opportunities for those engaged in cultivation. The aims of land reforms are economic, but in a still greater and more pressing degree, they are also social and political. The structure of rights in land is not only a major factor in the growth of the national economy, but also a *sine qua non* for social stability and political progress of the country.

2. A brief historical retrospect is necessary for a proper understanding of this national problem. During the later periods of British rule some attempts were made to raise agricultural productivity and the material standards of the rural population, but adequate attention was not paid to problems of land ownership and tenures. For instance, although the Royal Commission on Agriculture produced a comprehensive and valuable report in 1928 dealing fully with every agricultural and rural problem, it made no reference to the unsatisfactory features of the land tenure system. However, popular feeling, which was developing against this system, asserted itself after the grant of provincial autonomy in 1937. The first area to attract attention was Bengal, where the ordinary defects of the prevailing system were aggravated by the Permanent Settlement, under which the land revenue to be collected by the Government was fixed permanently in 1793. This fixity of revenue was found incompatible with the growing demands made on the Provincial Governments by nation-building programmes. A Land Revenue Commission was, therefore, appointed in 1938 under the chairmanship of Sir Francis Floud. The recommendations of this Commission led ultimately to legislation for abolishing the Permanent Settlement and with it the institution of land ownership. In a later part of this chapter we deal with the question of implementing the scheme embodied in the East Bengal State Acquisition and Tenancy Act, 1950.

3. The question of land reforms was one of the most urgent national problems to which the country had to address itself after the attainment of independence. In West Pakistan, the Muslim League Agrarian Reforms Committee proposed in 1949 a series of short-term and long-term measures. The short-term proposals aimed at, (a) abolition of occupancy tenancies and *jagirs* (lands given free of taxation in return for public services), (b) security of tenure to tenants-at-will, (c) reduced rents payable by tenants and (d) abolition of illegal exactions imposed on them by landlords. The long-term proposals provided for, (a) ceilings on ownership of individual landlords with provision for compensation and (b) distribution of land thus released among the cultivating tenants. In the former Punjab a Tenancy Laws Enquiry Committee, which was complementary to the Muslim League Agrarian Reforms Committee, recommended reforms largely on the lines of the short-term measures recommended by the Muslim League Agrarian Reforms Committee. In the former Sind a Tenancy Laws Committee reported in 1945, followed by the Hari Committee Report of 1948. This period is thus noteworthy for numerous inquiries, which are evidence of the new hope of a better living aroused among people by attainment of independence. Most of the short-term measures recommended by the various Committees were written into legislative acts, but action is still to be taken on long-term measures. In our opinion this action is overdue.

**Legal aspects of land tenure**

4. Land tenures in Pakistan, as in the Indian areas of the sub-continent, have evolved over a period of 150 years or more under the influence of changing political and social forces and do not follow any uniform pattern. They can be grouped under three categories :

(*a*) Large landed estates owned by individual landlords. The village population consists largely of tenants who cultivate the land. This system prevails in West Pakistan and over large areas of East Pakistan except that in the latter province it is under liquidation ;

(*b*) Peasant proprietors who own comparatively small areas, which they cultivate themselves with the help of the members of their families or hired workers. Such owners are usually settled in the form of village communities. The system is known as *bhaichara* where the members are descended from the same ancestor and *pattidari* in other cases. These communities are found in the former Punjab and North-West Frontier Province ;

(*c*) *Raiyatwari*, a system under which land is held directly from the State on a tenancy basis but with security fully guaranteed in practice. The occupant is free to give up any land and avoid his liability for land revenue. The ownership of commons or *shamilat* vests in the State and not in the village communities. The occupant enjoys heritable and transferable rights, which places him practically on the same footing as an owner. This system prevails in the former Sind and will prevail in East Pakistan after the acquisition of land by the Government under East Bengal State Acquisition and Tenancy Act 1950.

5. In the pre-British period the landlords of Bengal were intermediaries and functioned as revenue collectors. The British rulers conferred ownership rights on them on the analogy of the land-ownership system in their own country. The land-owners of West Pakistan are descended directly or indirectly from those who were in occupation of land at the time of the British conquest. Large owners had achieved their position in several ways. In border areas adventurers were able to occupy large areas, dominating the cultivators but giving them protection. Many large estates were awarded by the British to their supporters in their struggle for power. The former Sind had no well-established village communities or landlords of the kind found in the former Punjab and North-West Frontier Province. The country consisted largely of extensive desert areas with uncertain crop yields due to insufficiency and irregularity of rainfall. People did not want to hold such land in full ownership, which would make them liable for land revenue. This led to the *raiyatwari* system. The occupants in some cases were descendants of regional chiefs holding political sway over large areas but acquired the status of large land-owners. Nearly 80 per cent of the total area of former Sind is held by a small number of estate-holders, who strictly speaking are occupancy tenants of the State. Their lands are cultivated by tenants-at-will known as *haris* working directly under them, or under intermediary interests like the *mokhadims* on *Jagir* lands, with heritable and transferable rights in land. In addition to three main categories, of large estates, peasant ownership and *raiyatwari*, there are holders of *Jagirs* who have land grants exempted from land revenue. They are found in the former Punjab, North-West Frontier Province and Sind, where they are called *inam* holders.

6. Large *zamindars* (landlords) and tenants exist throughout West Pakistan, but the *zamindars* of the former Punjab and North-West Frontier Province have legal claims of ownership, while in the former province of Sind, ownership, under the *raiyatwari* system, vested legally in the State. Tenants are of two categories: occupancy tenants and tenants-at-will. The former are in the course of being eliminated by a process of upgrading and the latter are gradually acquiring security of tenure.

### Urgency of reforms

7. The institution of landlordship is characterised by concentrations of ownership of land in the hands of a small number of landlords. This generates evils of diverse kinds in the social order. Recent figures showing the extent of land concentrations are not available, but sufficient data are available to establish their existence. According to the Punjab Tenancy Laws Committee, land ownership in the former Punjab was distributed as follows :

### TABLE I

*Area owned including uncultivated area by size of holdings in the former Punjab.*

| Size of holding | Acres | | No. of owners | |
|---|---|---|---|---|
| | (Thousands) | (% of total) | (Thousands) | (% of total) |
| Less than 10 acres ... ... ... ... | 7,092 | 31·8 | 1,809 | 78·7 |
| 10 to 99 acres ... ... ... ... | 10,428 | 46·7 | 476 | 20·7 |
| 100 to 499 acres ... ... ... ... | 2,502 | 11·2 | 12 | 0·5 |
| 500 acres and above ... ... ... | 2,295 | 10·3 | 1 | 0·1 |
| Total ... ... | 22,317 | 100·0 | 2,298 | 100·0 |

*Source* : Report of the Tenancy Laws Enquiry Committee, Punjab, Appendix IV.

8. Table I shows that more than one-fifth of the cultivable area is owned by about one-half of one per cent of the owners, and almost 80 per cent of them own less than one-third of the area. This position must have changed somewhat as a result of migrations of non-Muslim *Zamindars* and the distribution of their lands among refugees, but in substance the picture must still be that of maldistribution of land marked by large concentrations in a few hands. As against this, the policy of Government is to bring about equitable distribution of income and property.

9. The position is worse in the former province of Sind. According to the Sind Administration Report, 1936-37, about 3 per cent of the total owners, each with a holding averaging 1,000 acres, owned 48·6 per cent of the total cultivated area. Over 70 per cent of the total farm land was owned by only 7 per cent of the owners, who owned on an average 300 acres or more each. According to an article written by the then Revenue Minister of Sind in 1955, the total occupied land in Sind was 86 lakh acres, of which 124 *jagirdars* held 11 lakhs. About 3,000 landlords held 60 lakh acres, and of these 294 persons held 5,000 acres or more each. Some of the holdings exceeded 60,000 acres each. Small holders owning 100 acres or less shared 15 lakh acres among themselves.

10. In the former North-West Frontier Province, according to the Muslim League Agrarian Reforms Committee, large owners held 1·2 out of 2·5 million acres of cultivated land, which is 48 per cent of the total. According to the Punjab Tenancy Laws Committee, 56 per cent of the total area in the former Punjab was cultivated by tenants-at-will.

In former Sind 80 per cent of the total land was cultivated by tenants-at-will known as *haris*. In the former North-West Frontier Province the tenants cultivated about half of the total land.

11. We do not wish to suggest that private-ownership functioning with tenancy is necessarily a social evil, but in this country concentration of land ownership in a few hands has been accompanied by absentee landlordism. As a rule landlords live in towns, leaving the management of their lands to agents, who have little interest in the tenants or the improvement of land. Landlords enjoy high economic and social status, and with their influence in politics and administration are able to exploit the tenants in various ways, thereby obstructing and delaying the process by which tenants can raise their economic and social status. The tenant usually has little means of redress, since so far as he is concerned the officials are a part of the system which the landlords control. The landlord is largely interested in the collection of his dues, whether legally recognised or not, and the preservation of his power over his tenants, whom he is disposed to treat as his subjects, as signified by the term '*raiyat*'.

12. In such countries as the United Kingdom and the United States there may not be anything wrong with the institution of land ownership based on tenancy. The days of feudalism are long passed, and, speaking broadly, the owner and the tenant now enter into partnership largely on the basis of equality. The tenant is aware of and able to assert his political and social rights as a citizen ; because of full employment, discontented tenants can find a living elsewhere. This provides a salutary corrective for land-owners, and forces them to preserve good relations with their tenants and treat them with cosideration. There is no analogy, therefore, between this country and those that have emerged from feudalism and passed into the era of advanced industrialisation with full employment and widespread education promoting mobility of labour.

13. While taking stock of the conditions in the country, one is struck with their similarity to feudalism. Under the landlord system the cultivator has no real stake in life and can feel no interest in his land. He can have no higher motive than to continue to exist as best he can without rights, without opportunities and without status or dignity. The feudal lord exercised his powers direct, while the landlord in this country, no longer enjoying judicial and administrative powers, uses his position and influence to preserve his authority. This situation is incompatible with a progressive society. The needs of industry, transport and social services demand that the cultivator should produce not for himself alone but also for a nation-wide and in many cases for a world-wide market. He must increase his production to the maximum level with the latest knowledge and techniques in order to achieve and sustain high standards of living for himself and the country. His position, which was always of a key nature, has acquired decisive significance, and he must be provided with an environment in which his energies will be released to enable him to do full justice to the duty he has assumed for the nation. The energies of the cultivator will not find full scope unless the fruits of his labour are guaranteed to him. He must be roused by a sense of ownership in the land and its fruits to enable him to do the utmost of which he is capable. He must be enabled to use the fruits of his labour for his greater comfort and higher social status. He must be enabled to prepare his sons and daughters for a better life than has been his lot. These are primary conditions which must be fulfilled, if the economy is to develop for the benefit of the people.

14. Economic and social factors are intermingled and interdependent, but frequently social factors act as powerful incentives for the growth of an economy. The feasibility of a higher status for man as a result of the advancements of science and technology is the most welcome fruit of modern industrialism. From slavery and serfdom he has passed to an age in which freedom and dignity have come within his reach. Science has placed enormous powers in his hand for the exploitation of natural resources. He is becoming

vividly conscious of his rights : the right to knowledge ; the right to work and freedom from want ; the right to equality of opportunity and equality before law ; the right to participate in the management of the country ; in brief, the right to a higher life, materially and culturally. Democracy is a means to an end and not an end itself. The development of man to his full stature must be the ultimate objective of our social and economic policies. The institution of landlordship, characterised by large concentrations of property, wealth and power, is basically incompatible with the aspirations which are surging in the heart of modern man. A change in this institution is an urgent measure of reform. It constitutes the most important problem of our country, transcending in its magnitude and implications every other problem, social or economic. Economic development would be neither uninterrupted nor meaningful until this problem is solved.

### Land reforms in other countries

15. To see the problem of land reforms in its true perspective, we propose to give a brief account of the measures introduced in recent years in some of the other countries faced with similar conditions. In past ages, when communications were lacking, nations could live in comparative isolation, largely immune from outside influences and developing their social institutions in their own way. This is not possible in the modern age of fast communications. The land reforms that have been introduced in one country after another are traceable to the same social and economic forces, and follow essentially the same pattern. Their objective is the same, one of achieving higher standards of living and a richer life for all. The driving force is provided by the rising tide of demand for higher status and equal opportunities, which can be resisted only at great peril to social and political stability.

16. In Japan, tenancy conditions were characterised by high rents, payment of rent in kind, and insecurity of tenure. Between 1898 and the World War II several attempts were made to improve the situation. The motive was the recurring food shortage which led to attempts to improve tenants' conditions in order to increase production. The Agricultural Land Adjustment Law of 1945 prohibited rents in kind and attempted a land distribution programme, but the measure was unsuccessful because of its voluntary nature. Effective reforms came in 1946, under the military occupation of the Allied Forces.

17. Tenancy conditions on the eve of the reforms of 1946 basically resembled those in other Asian countries, though a series of important reforms had been carried out during the preceding 20 years. The level of productivity was higher on account of a high degree of intensity of cultivation developed in the country. Because of industrial development only about half of the total population depended on agriculture. Even then the cultivated area per family was only 2·25 acres. For 34 per cent of the toal number of families in 1945, it was 1·5 acres or less. Rents ranged from 50 to 60 per cent of the gross produce. In 1946 about 46 per cent of the total cultivated area was under tenancy, and about 70 per cent of all cultivators were holding all or part of their land as tenants.

18. The reforms of 1946 were due directly to the initiative of the Supreme Commander of the Allied Forces, who issued a directive to the Japanese Government on October 9, 1946, to produce within four months a programme providing for transfer of land ownership from landlords to tenants, and for protecting the new owners from reversion to tenancy. The instructions led to the enactment of a law in December, 1946, with the following provisions :—

(*a*) The Government was authorised to purchase, for later resale to tenants, all land owned by non-residents of the village and land in excess of 2·5 acres (10 acres in the Northern island of Hokkaido, where more extensive agriculture was practised), owned by residents of the village ;

(*b*) All farmer-owned land in excess of 7·5 acres (25 acres in Hokkaido) was to be purchased unless it could be proved that the owners had sufficient family labour to cultivate a larger area, or that sub-division would result in decreased production ;

(*c*) Land farmed by tenants was to be covered by a written lease ; and

(*d*) The work of transfer and all decisions pertaining to it were the responsibility of ten-man village Land Commissions in each village democratically elected by the village landlords, owner-cultivators and tenants. Village Commissioners elected a twenty-man prefectural Land Commission of landlords, owner-cultivators, and tenants in each of the 46 prefectures of Japan, which acted as an appeal body. The elected Commissions enforced the law and determined the details regarding the land to be purchased, the purchase-price and to whom it was to be sold. In most cases land was allowed to the tenant who had been cultivating it in 1945. The payment was to be made in instalments spread over a period of 25 years at 3·2 per cent interest.

19. The transfer was completed by January, 1950 and 4·5 million acres (one-third of the entire cultivated area) was transferred to owner-cultivators. Three million cultivators (representing 50 per cent of all farmer households) became owners. Before the reform only 29 per cent of the cultivators owned all the land they tilled and 20 per cent were land less tenants. After the reform, 70 per cent of the owners were full owners, less than 6 per cent were landless tenants, while the remaining 24 per cent owned some of the land they tilled. It is estimated that 90 per cent of the land is now in the hands of owner-cultivators. The reform was facilitated by two factors, the prevailing inflation and the freezing of rents during the war. The latter kept the compensation at low levels, and the former enabled the tenants to pay off the purchase price in a few years. They do not, however, affect the principle of the reform.

20. In Burma the constitution framed after independence contains the following provision : "The State is the ultimate owner of all land........................Subject to the provision of this constitution the State shall have the right to regulate, alter or abolish land tenures or resume possession of any land and distribute the same for collective or co-operative farming or to agricultural tenants". Soon after this the Land Nationalisation Act of 1948 was passed. This measure proved unsatisfactory and was replaced by the Land Nationalisation Act of 1953, the object of which was to transform the cultivators from serfs to land owners. This Act is based on the following principles :

(*a*) No land can be resumed by the Government from a farmer-owner ;

(*b*) The object is to install farmer-owner and resume land from landlords who do not cultivate it themselves ; and

(*c*) Payment of fair compensation for land resumed by the State.

21. Village land committees consisting of agriculturists are the agencies for granting exemptions and distributing the land. Their work is controlled and supervised by the Central Nationalisation Committee appointed by the President. As regards compensation to the landlords, the first slab of 100 acres resumed, is compensated at the rate of 12 times the land revenue. The multiple is then reduced by one for each additional slab of 100 acres, the 12th and higher slabs being compensated at a rate equal to the land revenue. The total compensation payable averages 22 *Kyats* (Rs. 22) per acre. A number of safeguards have been provided in the law to prevent the reversion of land from the farmers to those who will not cultivate it themselves.

22. Egypt is one of the most densely populated countries of the world. Three quarters of its 22 million people work on land depend upon an area of 6·26 million acres. The whole of this acrea is irrigated, and much of it is double-cropped. Due to the natural fertility of the soil and the use of fertilisers, the productivity per acre is high, but the output per man is low. Until recently the most serious defect of the agricultural system was the concentration of land-ownership in a few families. Thus 2,115 landowners owned 1,282,000 acres or 25 per cent of the cultivated land, while 2,569,000 small holders possessed in total only about 2,200,000 acres—an average of 0·84 acre per person. The larger estates were cultivated mainly by tenants.

23. The Decree on Agrarian Reform issued in September 1952, embodies a comprehensive policy of reform. It provides " No person shall own more than 200 *feddan* (about 210 acres) of agricultural land ". Exceptions are made in the case of companies and societies owning land for purposes of improvement and sale, private individuals owning desert land for improvement, and industrial, agricultural, scientific and benevolent societies. Compensation is paid at a rate equal to 7 times the basic land tax. To this is added the value of constructions, machine installations, and trees. The released land is redistributed among the cultivators. Farmers and farm labourers owning less than 5 *feddan* are entitled to receive from two to five *feddan* of expropriated land at a fixed price.

24. Expropriation and redistribution are to be completed within five years. From January 1, 1953, a supplementary tax has been imposed on all owners holding more than 200 *feddan* at the rate of five times the basic land tax, with the idea of making it worthwhile for them to sell their excess lands. The Decree on Agrarian Reform makes provisions for prohibition of subdivision of holdings below a prescribed minimum, regulation of relations between landlords and tenants, and the fixing of maximum rents. It also provides for the fixing of minimum wages for agricultural labourers, and for the grant of rights to form trade unions. These reforms are noteworthy because Egypt was the first Muslim country to introduce a radical and comprehensive scheme of agrarian reforms.

25. Because of similarity of conditions, Indian experience also can provide a useful guide. Some important land reform measures were passed by provincial Governments of pre-partition India as early as 1937, upon the establishment of provincial autonomy. In 1947, an Agrarian Reforms Committee was set up by the Congress Party " to survey the existing system of land tenure, to formulate a general policy of reform and to devise methods of compensating landlords and reorganising land holdings". The Committee reported in 1949 and recommended the abolition of *zamindari* holdings and the elimination of intermediaries between the State and the tiller of the soil. Land thus expropriated was to be transferred to the peasant occupier, with limitations on his rights to sublet. Other recommendations included establishment of new institutions for land management and agricultural development based on the village community, provision of cheap credit, the prescription of minimum agricultural wages and prices, and the planned organisation of rural industries.

26. These recommendations have been followed by action on the following lines :

(*a*) The elimination of intermediaries, including *zamindars* ;

(*b*) Tenancy reforms ;

(*c*) Fixing ceilings on holdings ; and

(*d*) reorganisation of agriculture, including consolidation of holdings, prevention of fragmentation and development of co-operative village management and co-operative farms.

27. Intermediaries have been abolished in almost all the States. Rents have been scaled down in most States ; permanent and heritable rights of possession have been given to tenants in some States and the tenants have been granted the right to purchase their holdings in all but three States. Maximum ceilings have been fixed for purposes of resumption by landlords for personal cultivation ; in some States ceilings have been imposed on the holdings of cultivators. To prevent fragmentation of holdings, restrictions have been imposed on the transfer and partition of land below specified limits in as many as seven States. Consolidation of holdings is being vigorously pursued, and work has already been undertaken in several States. Preparatory arrangements are being made in other States for this purpose. As to reorganisation of farming, village management and co-operative farming are being organised on an experimental basis.

28. The pace of progress has been considerably accelerated since the formation of the Planning Commission and the beginning of the Five-Year Plan. Land reform actually is the responsibility of the States, but it is felt in some quarters that delay would have been avoided if the subject of land reforms had been included in the list of central subjects. The Central Government, however, has created for co-ordination, promotion and guidance of the programmes of the States, a Central Committee of Land Reforms as a part of the general planning machinery.

29. In general, reform measures in other countries are based on the principle that land should belong to the tiller, with exceptions allowed for overriding reasons of national economy. In all countries except those where the prevailing political philosophy has dictated otherwise, compensation has been paid on a modest scale for acquired land, and in most cases over a long period of years. Again, the reform schemes provide opportunities to cultivators, voluntarily or compulsorily, to become owners of their holdings except in Burma, where under the constitution the State is the owner of all land. Finally there is a tendency to implement the reforms through democratic machinery—for example, in Japan and Burma.

30. The present Prime Minister enunciated exactly the same principles in an address delivered at Karachi University on 24th July, 1954. He said :

> " In the field of agriculture the ideal is widespread ownership of land so that every farmer owns the farm he works on. In East Bengal, *Zamindari* has been abolished, but in West Pakistan the problem has still to be tackled. Land reform is a vast subject but I shall briefly indicate my view, which is that legislation to protect the rights and tenure of tenants is not enough, that it is necessary to break up big estates and to fix a maximum limit to individual holdings. This is necessary not merely to increase productivity but much more so in the interest of democracy and social justice ".

## Recent land reforms

31. East Pakistan is considerably ahead of West Pakistan in the field of land reforms. The economic and social evils of the *zamindari* system of Bengal, particularly under the Permanent Settlement, had been widely recognised for many years. In 1940 the Land Revenue Commission recommended the abolition of the Permanent Settlement and its replacement by a system under which all intermediaries would disappear, and the State would establish direct relations with the cultivators. The Commission claimed that this reform would enable the Government to undertake programmes for consolidation of holdings, creating and maintaining economic holdings, and generally for improving the economic position and status of cultivators. Action on this report was delayed by the war. The recommendations of the Commission were supported by the Bengal Administrative Enquiry Committee of 1944, on the ground that the existing system tended to obstruct and

clog the administrative machinery and acted as a barrier to the proper exploitation of land and water resources. In 1947 the Bengal State Acquisition and Tenancy Bill was introduced in the Provincial legislature of undivided Bengal but was not passed because of the partition of the country.

32. After independence the Government of [illegible] Pakistan took up the matter again. The East Bengal State Acquisition and Tenancy Act, 1950, [illegible] a series of [illegible] reforms in the land ownership and tenure system of East Pakistan. Under its provisions all rent-receiving interests between the cultivating tenants and the State are to be abolished and the emergence of rent-receiving interests in the future is to be prevented. There is a celing for the *khas* (*khud-kasht*) possession of land, which may be either 100 standard *bighas* (about 33 acres ) or 10 *bighas* per family member, whichever is greater, *plus* an additional 10 standard *bigahs* for the homestead. These limits can be relaxed in exceptional cases, such as farms with power-driven mechanical appliances, or large dairy farms or tea and sugar plantations. The tenants are assured of full occupancy rights with the right of transfer to bona fide cultivators. Sub-letting is forbidden. The principle of restrictions on the sub-division of holdings is recognised, and provision exists for their consolidation under certain conditions. A summary procedure is provided for the acquisition of big *zamindari* estates for which reasonably reliable rent collection papers are available. The remaining rent-receiving interests are to be acquired under a comprehensive system, according to which records of rights have to be prepared originally or by revision based on comprehensive surveys. The out-going rent-receivers are entitled to compensation at prescribed rates. The compensation is a multiple of the net income, from ten times for incomes not exceeding Rs. 500, to twice for incomes exceeding Rs. 100,000. The net income is determined by deducting from the estimated gross receipts of the rent-receiver the various sums payable or costs incurred, like land revenue, rent, cesses, agricultural income tax, maintenance of irrigation works, and collection charges. The compensation for claims is to be paid in non-negotiable bonds carrying 3 per cent interest payable in not more than 40 annual instalments.

33. The summary procedure for acquisition was intended to forestall unscrupulous *zamindars* who were resorting to a variety of a malpractices, such as relinquishment of *khas* lands for small payments, abandonment of claims for outstanding rents, and creation of new rights. It has served a very useful purpose and secured to the Government a substantial increase in revenue from land within a short period at relatively negligible costs of acquisition. So far 432 estates have been acquired under this procedure. According to the provincial budget for 1955-56, 105 estates were acquired during 1954-55. The annual rental demand from estates acquired so far amounted to 38 million rupees at the end of the financial year 1954-55 as against 27·5 million at the end of 1953-54.

34. The procedure for acquisition by full surveys and preparation of assessment rolls is desirable and thorough but time-absorbing. The summary method effects the topmost intermediaries and leaves other levels untouched. Many intermediaries have interests spread out in more than one estate, in each of which a person may conceivably occupy a different status. The comprehensive system involves, (a) surveys and preparation of records-of-rights, (b) ascertainment of rents, (c) preparation of compensation assessment rolls, (d) payment of compensation, and (e) creation of machinery for the collection of rents. The pace of implementation under this system has been very slow. It has been started in the Bakerganj and Khulna districts ; intermediaries have been removed in 2 sub. divisions of Bakerganj district and preparations are in progress in 5 *thanas* of Khulna district. Only a little over 3 per cent of the total area in the Province has been settled so far. It is estimated that at this rate the operations will take 15 to 17 years to be completed. This pace is far too slow to satisfy the growing urge of the people for a better economic and social life, and must create new problems and difficulties.

35. It was argued that the slow progress was due to lack of trained personnel and of finance. We consider that, while this view has an element of truth, it does not explain the fundamental causes and is largely superficial. We are inclined to think that there was a lack of will and, therefore, of planning and forethought for the execution of the project. With a will to get things done, the bottlenecks due to inadequate personnel and insufficient funds could be overcome by the planned employment and development of available resources.

36. We consider that the early implementation of this scheme is essential to the economy of East Pakistan. Uncertainty in economic and social relationships and tenancy rights can have widespread and complex consequences. Under the former system, economically and socially intolerable as it was, the landlords displayed some measure of responsibility for the tenants : they helped them to maintain their cultivation, and participated in their social life, though in a patronising spirit. They have now lost all interest but the tenant has not yet acquired the promised status of independence and self-reliance. The vacuum thus created has not been filled by State agencies, though progress in Village AID is expected to make a real change in the position.

37. Acquisition has been attempted and completed in many countries in a short period, and it is of the utmost importance that the present state of uncertainty and instability should be removed as early as possible and the people set on the course of economic and social advance towards their desired goals. We are happy to note that the present provincial government of East Pakistan are alive to the urgency of this problem and are taking necessary measures for expediting the process of implementing the scheme embodied in the East Bengal State Acquisition Act. According to press reports they had decided to acquire all intermediary rights with effect from 14th April 1956 but action has been stayed under the orders of the Dacca High Court.

38. The elimination of intermediaries will be the first and the most important step in a series of measures required to release and activate the productive energies of the people living in the rural areas and dependant on land directly or indirectly. They constitute the majority, and on them depend the future progress, prosperity and strength of the country. Measures relating to the consolidation of holdings, determination of sizes of minimum holdings, prevention of fragmentation of holdings, and the principles of determining the rents payable by the tenants are all being delayed by delays in the programmes of land acquisition.

39. We think that it would be in accord with the accepted social objectives to endow the cultivators in East Pakistan, as in other parts of the country, with the full rights of ownership. The aim must be to build a rural society largely consisting of independent and self-reliant peasant proprietors. As cultivators they would pay rent to the Government while as owners they would be liable to pay land revenue only. Perhaps the difference between the land revenue and rent could be treated as a payment towards the price of the land with the option to the cultivator to complete the payment in a smaller number of instalments. The Government should fix the price of the land, which should be related to, though it need not be as high as, the market price or the price normally recovered when government land is sold.

40. In West Pakistan progress in land reforms has varied from one of the former Provinces to another. In the former Sind the Tenancy Laws Committee which reported in 1945, favoured the grant of tenancy rights to *haris* who had personally cultivated at least four acres of land annually for the same *zamindar* for an uninterrupted period of 8 years. *Haris* acquiring such rights would be immune from ejectment except for failure to cultivate the land personally or efficiently and fully, or to live in a recognised village within a

mile of the farm, for failure to pay the prescribed rent, or for conviction for certain offences. No action was taken on this report. Another Committee, known as the Hari Committee was appointed in March 1947, under the Chairmanship of Sir Roger Thomas (a local *zamindar*) and reported in January, 1948. This Committee was required under its terms of reference to consider what reforms could be carried out without disturbing the rural economy. The Committee submitted two reports, a Majority report and a Minority Report. The Majority Report admitted that the *hari* has a hard life but considered that his troubles are due to natural causes, over which no one has any control, or to government neglect, or to his own dishonest and improvident habits. The *zamindar* was represented as the *hari's* best friend, almost a loving parent ever ready to help him. This assessment of the situation cannot be accepted ; it was challenged by the Minority Report and it is not supported by the evidence of impartial observers. The Committee, however, was of the view that the Government should legislate through a Tenancy Rights Act to take powers to regulate share-cropping practices and to grant rights to *haris*. In 1950 the Sind Tenancy Act, 1950, was passed, which, as amended from time to time, abolishes non-statutory charges, fines and rents, and gives permanent rights to cultivators of a survey number or of at least four acres of land for the same landlord for a continuous period of not less than three years. Where he has cultivated the same piece of land for three years, the cultivator acquires permanent tenancy rights in the particular piece of land, but where he has cultivated different pieces of land under the same landlord he acquires the right to continue to cultivate so much land as is declared to constitute a " family holding ". All tenants other than permanent tenants are to be tenants-at-will, with security for one year only. According to the Act, they " are not liable to be evicted before the end of the cropping season, the date for which may be prescribed."

41. It is doubtful whether the Act gave any substantial security even to the " protected tenant ". A former Sind Minister was reported to have said that " a *zamindar* would not allow a tenant to cultivate a particular piece of land continuously for more than two years, for that would entitle the peasant to permanent tenancy rights". Further even those few *haris* who acquire such rights are not able to enjoy them because of their ignorance, illiteracy and friendlessness in the face of landlords' political and social influence. The Hari Committee recognised this danger, which has been confirmed by Sir Malcolm Darling, who recently conducted an enquiry into the conditions of agricultural labour in Pakistan. He reported : " The *hari* is in the main too helpless to take advantage of the Act and in many cases still too ignorant even to have heard of it ". He added : " formal eviction is not necessary : a landlord can always make things so uncomfortable for a tenant that he leaves of his own accord. To a bad landlord this is an obvious temptation. A Collector said that owing to incomplete or faulty revenue records, it was often difficult to decide who had cultivated the land in the past three years. Lastly, according to more than one authority, illegal cesses are still charged ". The position is thus scarcely better than it was before the passing of reform legislation. In 1954 the then Government of Sind issued orders abolishing *jagir* rights, but they were challenged in the court and were never enforced.

42. In the former Punjab Province, tenancies were, until 1950, governed by the Punjab (and North West Frontier Province) Tenancy Act of 1887, which applied only to occupancy tenants and gave very little protection to tenants at-will. The tenancy Laws Enquiry Committee recommended the grant of security to tenants-at-will, and abolition of occupancy tenancies and non-statutory exactions. Tenancy legislation was enacted in 1950 and 1952. The Punjab Tenancy Act of 1950 was intended to abolish the various cesses (called ' *haboob* ') which the tenants had to pay to their landlords in addition to rent. The Punjab Protection and Restoration of Tenancy Rights Act, 1950, prompted by the large number of evictions which followed the passing of the Sind Tenancy Act, 1950, imposed

restrictions on the rights of landlords to eject their tenants, with retrospective effect to May 1949. A tenant could be ejected only if he was not cultivating the land according to the specific or customary terms of his tenancy, or did not pay the rent punctually. In practice, however, the landlord is often strong enough to frustrate protective legislation. Cases have been reported where landlords have either refused to give receipts for the produce received, or have failed to lift the produce from the field, and then lodged suits for ejectment on the ground of non-payment of rent. Also, those employed on areas allowed to landlords for their own cultivation are not protected at all.

43. A 1952 amendment to the Punjab Tenancy Act aimed at turning occupancy tenants into owners of the land they cultivate, fixed the landlords' share at 40 per cent of the gross produce and regulated the " *khud kasht* " (owner-cultivated area), which can be held by the landlord and to which the provisions of the Punjab Protection and Restoration of Tenancy Rights Act do not apply. Occupancy tenants hold about 7 per cent of the total cultivated area of the Province and are of various categories ; some pay rent in kind and some only pay a nominal ' *malikana* ' ranging from two annas to eight annas per rupee of the land revenue. The Act gives proprietary rights to occupancy tenants, without compensation to the landlords where no rent as such is paid, and payments are limited to land revenue and rates and cesses ; and with compensation (20 times the rent) where cash rents are paid. Where the tenant pays a share of the produce, he becomes owner without compensation of a portion of land corresponding to his share in the produce. Occupancy tenants have started acquiring proprietary rights under this law.

44. Some difficulties were experienced by the then Government in the implementation of this provision of the Act. Landlords desired to have full possession of the share remaining with them, while the tenants acquiring ownership of their share of occupancy tenancies claimed the remaining portion as tenants under the Punjab Protection and Restoration of Tenancy Rights Act. A serious objection to this method of liquidating occupancy tenancies was the further sub-division and fragmentation of holdings which would result from it.

45. Another important provision of the Punjab Tenancy Act (as amended ) pertained to the fixation of the produce rent. The landlords' share was reduced from 50 to 40 per cent of the produce. This relief was accompanied by the provision that the tenant shall be liable for payment of government dues on a proportionate basis. It was reported that in some areas the implementation of this provision was being evaded and that the landlords continue to collect 50 per cent. To avoid incurring the displeasure of the landlords the tenants refrained from demanding enforcement of their rights under the law. There was also considerable confusion regarding this particular provision. It did not apply to lands to be reserved by the landlord for personal cultivation. No one owning more than 100 acres of land could have in his possession for personal cultivation any culturable land exceeding 50 acres of irrigated or 75 acres of semi-irrigated or 100 acres of unirrigated land. Each landlord was required to declare areas which he wished to reserve for his personal cultivation, so as to check the danger of wide-spread ejectment of tenants from areas reserved for owner cultivation. The date for this declaration has been repeatedly deferred ; it is now fixed for December 31, 1956. The provision regarding the 40 per cent of produce rent was not acted upon, because it applied only to those areas which did not come under the personal cultivation of the landlord. The limit for personal cultivation was fixed by the Act of 1950 at 25 acres of irrigated land with corresponding areas of other types of land. This limit was raised to 50 acres by the Amendment Act of 1952. By disturbing a much smaller number of tenants, the original provision would probably have kept the problem within manageable limits.

46. On the whole, the Punjab Tenancy Reform Laws *did* not produce the desired results. They were not fully implemented but they created tensions between the landlord and the tenant. The tenant felt that he was the virtual owner and begrudged the landlord even the rent legitimately payable to him. The landlord on the other hand felt that he had been practically dispossessed of his property rights in land. Each thus manoeuvered for position against the other and the result depended upon whether the landlord was big or small.

47. The Punjab Tenancy Act of 1887 also applied to the former North-West Frontier Province. In 1950 a new Tenancy Act was passed, which granted security to all tenants for 3 years, and conferred full proprietary rights on all occupancy tenants. Under the Act, occupancy tenants who were paying no rent to the landlord except land revenue, rates and cesses would become full owners without payment of any compensation to the landlord. Those who paid rent in cash would become owners on payment of compensation. In the case of cash rents, as soon as they had paid ten times the annual rent either to the owner or into the Government Treasury, the rights of ownership would be transferred to them. Occupancy tenants paying a share of the crop to their landlords could apply to the Revenue Officer for partition of their holdings and could become full owners of a portion of land, corresponding to their share of the produce, without payment of any compensation to the landlord. So far 242,679 occupancy tenants out of a total of 248,100 have become full owners after payment of compensation. Partition of land among occupancy tenants paying rent in kind and their landlords is in progress, and it is reported that out of 120,132 occupancy tenants, about 103,000 have so far been declared owners of land. The working of the Tenancy Laws in the former North-West Forntier Province did not cause any serious tension between the landlord and the tenants, presumably because their respective rights were clearly defined.

48. Some other measures of reform were also introduced, such as abolition of *jagirs*, grant of rights to mortgagors to obtain release without making any payment, exemption of houses from attachment and the recognition of the title of women to inherit property.

49. Conditions in the former Bahawalpur State were similar to those in the Punjab. Conditions in the former Khairpur State and the districts of Baluchistan bordering on Sind were similar to those in Sind. No attempts were made to introduce any measure for protecting the rights of tenants in those regions.

50. The recent constitutional changes resulting in the merger of the various Provinces and States in the Western Wing of the country into one unit, afford an excellent opportunity for giving a uniform basis to the variety of tenancy laws and similar legislation in this area. This administrative change has raised new hopes in the country, including those for land reforms. We hope that the West Pakistan Government will give this problem the priority it deserves.

### Ceilings on ownership

51. In all countries with similar problems there is a strong movement to assert the principle of owner cultivation and to incorporate it in the agrarian structure. The object is to accelerate the transition from a feudal to a democratic society, in which all energies will be devoted to development of material and human resources with a view to higher standards of living and security. For under-developed countries land poses the most perplexing problem in view of its scarcity combined with its major role in the achievement of a richer and higher life for the majority of the people. However, the pattern of agrarian structure which will best subserve the needs of a developing society has come clearly into view, and reforms can only be delayed but not prevented. Among Muslim countries, Egypt alone has embarked on a radical scheme of reforms.

52. In this country, East Pakistan has placed a radical measure of reform on its statute book, though it has not yet been fully implemented. It seeks to abolish the institution of landlordship, and assures to the tenants full rights of inheritance and transfer. Indian schemes of reforms are strongly inclined in the same direction. We do not advocate the drastic step of abolishing land-ownership in West Pakistan, as it will generate tensions and instability and create a number of difficult problems. Private property is a recognised institution in the community because of the values it enshrines for individual and social development. In our view the aim should be to limit the size of individual land holdings and we agree with the Muslim League Agrarian Reforms Committee, which recommended that 150 acres should be the upper limit for holdings of irrigated land, 300 for semi-irrigated and 450 for *barani* land, depending wholly on rainfall. These would form suitable units of management for land owners willing to take a personal interest in their lands. All lands in excess of these limits should be surrendered to the Government. Exemptions would however, be justified in the interest of the national economy in some cases, such as, (a) gardens and plantations, (b) estates or parts of estates which are already being cultivated with mechanical means, (c) lands allocated to agricultural colleges or universities for research, or (d) lands used by social service institutions for cultivation by them to meet their own needs rather than to market produce.

53. The ceiling of 150 acres would be too large for owner-cultivation and to that extent is in conflict with the accepted aim of eliminating unnecessarily large concentrations. In our view the Punjab Tenancy Act (as amended in 1952) provided for unduly large owner cultivation units; this has created the danger of ejectment and has aggravated tensions between tenants and landlords. Owner-cultivation units should be no larger than the owners can cultivate themselves, with the help of the members of their families and hired workers. In our view the maximum should be 25 acres for owner cultivated irrigated land, 50 acres for semi-irrigated, and 75 acres for *barani* land. Where mechanical methods are already being employed the ceiling for owner cultivation should be the same as for ownership in general. All lands in excess of these limits for owner-cultivation but not exceeding the ownership ceilings must continue to be cultivated by tenants.

54. The argument is frequently advanced that if concentration of land ownership is undesirable and in conflict with the social policies of our country, so must also be concentrated ownership of other forms of wealth—factories, urban property, industrial shares, government securities, or cash. We consider that the ownership of land is clearly distinguished from other forms of wealth. Land-owners who do not manage and cultivate the land themselves, with very few exceptions, do little to increase its productivity. By contrast, the owners of most other forms of wealth are usually progressive and provide increasing employment by their activities. They serve an essential purpose in a dynamic economy. Despite the anti-social practices in which some of them indulge, they are playing an active role in one way or another in developing the resources of the country and adding to its prosperity. Limitations on their holdings would be undesirable for the progress of the economy. Means for reducing the inequities of such concentrations of wealth must be sought in other directions, such as strict assessment and collection of taxes, including death duties and income taxes, promotion of co-operative societies to reduce the profits of middlemen, more equitable distribution of licences to build factories, and the formation of a professional class for the management of industrial enterprises.

55. On compensation for land surrendered by the landlords, the Muslim League Agrarian Reforms Committee, while advocating the principle had to confess that the moral basis for it was not beyond controversy, and added that "Land-lordism in Pakistan is a historical accident which has already conferred vast advantages and profits on generations of its beneficiaries and it would be illogical to make it a justification for the conferment of further advantages."

56. In the majority of cases the rights of ownership in large landed estates would not bear any scrutiny. They would be found to have been acquired by dubious means or conferred by British rulers for loyal assistance given in establishing and consolidating their hold on this country. Nor would compensation be justified on humanitarian grounds. The area of 150 acres left with the dispossessed families would suffice to provide reasonable income, particularly if they managed their lands and tenants effectively. Nearly all of them would have other valuable assets, often very large relatively to their needs.

57. In India compensation has been based on net rental value and has varied from Rs. 3 per acre in Madhya Pradesh to Rs. 9 per acre in Madras, Rs. 27 in Uttar Pradesh and Rs. 38 in Bihar. In Burma compensation is paid in terms of multiples of land revenue on a sliding scale ranging from 12 times downwards. Compensation on a somewhat similar basis will adequately meet all essential requirements in Pakistan.

58. The question of physical disposal of lands acquired from landlords should not arise, since the intention is to confirm the tenants' holding in the lands they are cultivating. We consider, however, that tenants should be granted rights of full ownership, which are necessary in accordance with the social objectives of the national policy. The aim is a society consisting of self-respecting, self-reliant and progressive citizens with full opportunities and scope for the development of their personalities in full consciousness of their rights and obligations. Full ownership in land will promote this object, and we accordingly recommend it. The tenants should be required to pay the price of land in reasonable instalments over a specified period of years. This price need not be equivalent to the comp ensation paid to the landlords, and should bear some relationship to the prices usually charged for Government lands. The payment of the price should be compulsory under the provision of the law and recoverable like land revenue.

59. We have proposed that landlord holdings should be subject to a limit of 150 acres of irrigated land, and that within that limit there should be further limits for owner cultivation. These recommendations apply to land-owners who employ tenants to cultivate a large part of their lands, though in principle an owner-cultivation limit may appear to apply equally to farmer-owners who do not employ any tenants. The position, however, has to be clarified so as to leave no ambiguity. The objective is maximum productivity to be secured under the driving power of prospective improvement in personal and family prosperity and status : the sizes should be such as will ensure efficient personal management with the help of family members supplemented during peak seasons with some hired labour. The farmer owner's natural acquisitive instinct will lead him to purchase more land whenever he can do so. Efficiency of cultivation will suffer; there will be correspondingly less land for others; and finally the practice of employing tenants in the garb of labour will tend to reappear. The aim must be to prevent the emergence of new landlords. To guard against such retrogressive developments it is desirable to fix maximum sizes of holdings for farmer-owners. It would be imprudent to reduce the size of existing holdings, but some action by way of a beginning should be possible to prevent further extension of holdings by purchase. The evil is not likely to assume any proportions for many years and need cause no anxiety. The final shape of this particular measure of reform will appear only after many of the other changes that we have recommended have been introduced, and have had time to embed themselves in the social and economic structure.

60. The measures we propose for restricting the size of land-holdings and for granting ownership rights to the cultivators would be incomplete without legislation to prevent the re-emergence of tenancies under the new owner-cultivators. The central purpose of the reforms, in the interests of agricultural productivity and social justice, is to work towards the goal of owner cultivation by eliminating concentration of ownership. The ceiling of 150 acres for irrigated land with adjustments for semi-irrigated and *barani* land has

been suggested to avoid concentrations, but its full purpose would be defeated if tenancy cultivation began to emerge on owner-cultivated lands, which can happen in several ways: owner-cultivators might rent out the whole or a part of their lands; they might purchase land being cultivated by tenants without exceeding the owner-ship limit; they might purchase land from other owner cultivators and rent it out, or an owner-cultivator might inherit land formerly cultivated by tenants. The model of legislative provisions to prevent a retrogressive movement has been set by the provisions of the East Bengal State Acquisition and Tenancy Act, 1950. In Burma also laws have been passed for the same purpose. The main principle is that the acquisition of land, by purchase, gift or inheritance, by a person who does not propose to cultivate it himself should be prevented, where necessary by acquisition by the State on payment of compensation and that the land should be allotted to labourers or landless tenants, or used to increase the size of uneconomic holdings.

61. The circumstances which have disturbed owner and tenant relations in recent years in the former Punjab arise from uncertainty about their claims to the same land holdings. The land-owner naturally wants to safeguard his rights and the tenant to take the maximum advantage of protective legislation, as well as of the general social trend of changes in his favour. The enforcement of our proposals would pave the way for altering the system of tenancies so as to reduce tensions between tenants and landlords, and help to establish co-operative relations between them. Tenants would continue to farm holdings beyond owner cultivation limits, but big landed estates, which have dominated rural life and exploited the rural population, would disappear. This would coincide with the implementation of schemes in the national programme for developing the rural areas and for uplifting their populations. The number of tenants would be reduced relatively to owner-cultivators and the problem would cease to be so large in size as it is today. This should give rise to greater equality, opportunity, dignity, and freedom. The gulf between the land-owner and the tenant would be considerably reduced. The tenant would become more conscious of his rights and obligations, and stand in less need of protective measures.

62. We consider that the uncertainties in the situation should be removed and that tenants and land-owners should be allowed to make arrangements between themselves on a free basis. We hope that in course of time their relations will come to approximate those prevailing in industrially advanced countries, with a reasonable recognition of each other's rights. The Government should instruct the district officers to use their influence to persuade land-owners to enter into leases for 5 to 10 years with their tenants. Model lease deeds should be drawn up and supplied to district officers and made available for public information. The rights and obligations of each party should be written clearly into the deeds, including conditions for termination of leases, one of them providing for the payment of compensation for improvements made by the tenants. When conditions are ripe provision might be made for the registration of such lease deeds. It would be necessary to lay down some principles to ensure reasonable scales of rent with a right of appeal by the tenant. The tenants should be given preference when selections are made for allotment in new areas which become available for colonisation. The fear of losing tenants would give landlords the necessary incentive to accord them reasonable treatment.

63. But the imposition of ceilings on the size of land-lord holdings and the adjustment of relations between the landowner and his tenants will not complete the reform of the agrarian structure: they will only provide the foundation on which the structure of reform must be erected, and create a favourable climate for changes which are necessary in the pursuit of economic and social objectives. Some of these changes depend on reforms which relate to preventing the fragmentation of holdings, fixing maximum sizes of cultivation holdings, and consolidating existing holdings. These basic reforms are discussed below.

## Prevention of fragmentation of holdings

64. In the preceding paragraphs we have discussed the demerits of concentration of land ownership in a few hands, and have proposed means for transferring ownership to the mass of cultivators themselves. We now consider the problem of the other extreme in land ownership: the danger of holdings being broken into units too small for economic cultivation. Fragmentation has certain absolute physical limits, whatever the laws of inheritance. It cannot be allowed to go unchecked till the land is torn into tiny bits and pieces wholly unsuitable for economic use. Miserably small pieces of land, reduced perhaps to less than one yard in width by the operation of inheritance laws, would be meaningless, if not disastrous. One obstacle to legislation for this purpose is the fear of infringing the Islamic Law of Inheritance, under which every heir is entitled to receive his or her share, whatever its size or value. We feel that our best course is to suggest national measures on the analogy of action that has been taken already in East Pakistan, and in other Muslim countries: Egypt and Sudan. The East Bengal State Acquisition and Tenancy Act, 1950, prohibits the division of a plot below a size for which the rent payable is below one rupee (section 117 of the East Bengal State Acquisition and Tenancy Act).

65. In Egypt, the Law of Agrarian Reforms, 1952 does not permit sub-division of a farm whether by sale, gift or inheritance into units of less than 5 *feddan* each, and requires heirs to settle among themselves who shall be the single owner. If the heirs are unable to agree among themselves, the matter is decided by the court, to which a reference can be made by any one of them or by the Government. If no one is prepared to pay the compensation, the court orders that the land be sold by auction.

66. In Sudan, the Land Settlement and Registration Ordinance of 1925 provided that both for divided and undivided shares certain minima should be fixed and that, after preparation of records of rights, the Registrar shall not include in his registers any transactions which result in reducing holdings beyond the prescribed minima. Since this necessitates certain adjustments, the beneficiary has to compensate the party at whose cost the benefit has been derived. In the absence of an agreement regarding the payment or receipt of compensation for such adjustments, the Registrar fixes compensation.

67. The question is not whether fragmentation without limits should be allowed or not, but what principles should be recognised for fixing the limits. East Pakistan has recognised the principles of administrative and accounting convenience, and the important fact is that the principle of limitation has been recognised, even though according to the view of some people in West Pakistan it infringes the inheritance laws. Sudan and Egypt recognise the principle of the utility of a holding in the economic sense—a principle of greater merit than administrative or accounting convenience. Muslim Law has always recognised the validity of acquisition of private property for public purposes. The laws for acquiring land or other immovable property for public purposes have never, to our knowledge, been questioned on the ground of their alleged incompatibility with the principles of Islamic laws. No public purpose can be higher or more compelling than the need for preserving and enhancing the productivity of land, on which depends the sustenance of the people. We, therefore, recommend that the Government should acquire the share of an heir to agricultural land which is below the economic size according to prescribed standards and use it to increase the holdings of other owners or tenants to at least the minimum economic size. Those whose holdings are increased should be required by law to pay, in suitable instalments, such price as may be fixed by Government. Those who thus get cash in lieu of an unusable piece of land should be provided with land or absorbed in employment elsewhere. They should, for instance, be given a high priority status in new colonisation areas. The problem of absorbing them in the economy of the country exists, and has to be faced, whether they are given land or cash. To confirm them in hopelessly uneconomic holdings would only conceal the problem, not solve it.

68. Apprehensions are likely to be felt by some people that fixing minimum holdings will cause rural unemployment. We do not share these apprehensions. No country has been deterred by such fears from pursuing a policy of land reforms, once political and social policies were inspired by aims of economic progress and ideals of social justice. Even a broad appreciation of the benefits of greater national productivity would dispel these fears. They should not be allowed to stand in the way of a better and juster social order. The measures we propose relating to minimum holdings will take considerable time to apply, because they will need the collection, study and analysis of a large amount of data. In the meantime, the programme of economic development will continue improving the productivity of lands now under cultivation, reclaiming new lands and creating new jobs in industries and services. Increases in agricultural productivity which will be brought about by the reforms will themselves raise the capacity of the economy for absorbing more men in gainful employment.

### Determining economic size of holdings

69. The economic size of a holding would vary from area to area with the fertility of the soil, extent of rainfall, availability of irrigation facilities, methods of cultivation employed, manures used, etc. We consider that the Provincial Governments should take steps by way of detailed investigation to determine and lay down the sizes of economic holdings. The problem has too far-reaching implications in terms of employment and prosperity to admit of solution by summary findings.

70. The sizes would vary not only from area to area in the same locality but also from time to time. A holding which is uneconomic today might well become economic with improvement in agricultural practices or with an assured supply of water. This should be borne in mind when any measures are taken to extend the holdings which appear to be below the economic size. Holdings of uneconomic size need not be enlarged if it is expected that with improvements in techniques they could become economic.

71. Because of scarcity of cultivable land, serious difficulties will be encountered in any programme for making all holdings economic. It is necessarily a long-term objective, to be attained by means of a multiple approach. We have already suggested the possibility of protecting economic holdings from uneconomic partitioning on inheritance. An intensive programme for improvements in agricultural practices would go a long way in making uneconomic holdings economic. The Village AID Programme and agricultural extension services will promote this development. This would be the main approach in East Pakistan, where land is seriously short relatively to population. Programmes of industrialisation, including those for small and cottage industries and the development of social services and transport, and indeed the economic development programme as a whole, should ultimately relieve the pressure on land. In West Pakistan it would be possible to relieve the pressure in congested areas by transfer of population to new areas which need rapid colonisation. A carefully devised system of selecting potential colonists will be needed in order to derive the maximum benefit. Preference should be given to those whose transfer will help raise their social status and release land which can be used to raise other holdings to an economic size.

### Consolidation of existing holdings

72. The previous section was concerned with means to prevent the fragmentation of land holdings. We now go further and consider means to consolidate existing units which are too small to be farmed efficiently. Uneconomically small land holding constitutes one of the known evils of agrarian economy which has engaged the attention of governments for a long time. It leads to losses of effort and production, the magnitude of which

cannot be estimated, and legislation exists for effecting the consolidation of such holdings, largely on a voluntary basis. Departmental agencies in the Revenue and Co-operative Departments have been operating for this purpose, but the results, though commendable, are not significant.

73. In East Pakistan it has not been found possible to do anything to deal with this problem, due largely to the subinfeudation resulting from the Permanent Settlement. The East Bengal State Acquisition and Tenancy Act, 1950 contained provisions for consolidation of holdings after the rent-receiving intersests have been acquired by Government. So far appreciable progress has been made only in the acquisition of large estates, with a very modest beginning elsewhere. It is hoped that acquisition will be accelerated during the coming years, and that consolidation of holdings can proceed as soon as well-defined areas are ready for it, without waiting for the successful completion of acquisition in the whole Province.

74. In West Pakistan, there is no big problem of consolidation in the former Sind, Khairpur, Bahawalpur, Baluchistan and Baluchistan States Union, where the holdings are generally large, and fragmentation has not gone so far as to reduce them to uneconomic units.

75. In the former North West Frontier Province and Punjab, the problem is serious. In the North West Frontier Province efforts were made from 1930 onwards by the Co-operative Department of the former Provincial Government to effect consolidation of holdings on a voluntary basis. A little over one lakh acres out of the total cultivated area of 2·9 million acres had been consolidated by 1955. The slowness of progress was considered to be due to the voluntary character of the programme and the lack of adequately trained staff. In 1946 the former North West Frontier Province Government passed the Consolidation of Holdings Act, 1946, which provided that, if at least two-thirds of the owners possessing not less than three-quarters of the cultivated area agreed to accept a scheme of consolidation, it could be imposed on others. The compulsory provisions of the Act have not yet been implemented, nor have the necessarry rules under section 26 been approved.

76. In the former Punjab the problems of fragmented holdings were the subject of government action from 1920 onwards; the policies embodied in legislation passed through three stages. In the first stage, the process of consolidation was started on a voluntary basis. The 1920 Act provided that the peasants, if they wished, could revert to pre-consolidation holdings, after 4 years of cultivation of the consolidated holdings. In the second stage under the Punjab Consolidation of Holdings Act, 1936, an element of compulsion was introduced, providing that, if at least two-thirds of the land-owners in an area applied for the consolidation of holdings, it should be enforced on other cultivators of that area. The third stage began with the Punjab Consolidation of Holdings Act, 1952, which empowered the Government to carry out the consolidation of holdings compulsorily in any notified area. The work, however, proceeded at a very slow pace: the total area consolidated in a period of about 35 years was only 1·3 million acres representing 6·5 per cent of the total cultivated area of about 20 million acres in the former Punjab.

77. We recommend that consolidation of holdings should be accelerated in those parts of West Pakistan where action is needed. It should be arranged on a selective basis; those areas being taken up first where fragmentation is known to be a serious problem and the consolidation is likely to yield substantial results, including undeveloped lands, with good prospects of accelerated development. The next priority should be given to areas included in the Village AID programme, where the village workers could assist in the educational campaign to prepare the villagers psychologically for consolidation. Once the priority areas have been dealt with, precedence should be given to villages requesting consolidation. Powers of compulsion should normally be kept in reserve to be used only when the owners fail to agree.

78. There were two Departments—Revenue and Co-operative—in the former Punjab Government engaged on this work, and we understand the same division still continues. We appreciate the advantage in terms of social values which could have been realised by using the agency of the Co-operative Department for the accelerated programme. We think, however, that on balance the advantage lies, from the point of view of smooth and speedy progress, in entrusting the responsibilities to the Revenue Department, which has the knowledge and staff necessary for the speedy and effective completion of the work. We recommend that the consolidation of holdings be entrusted to a single department responsible to the Financial Commissioner (Revenue), and that the staff working in the Co-operative Department on this programme should be transferred with it or given other employment. The new department should have field staff of its own, working in close association with the existing revenue staff in the villages. The consolidation officer at the district level would, for administrative purposes, be placed on the staff of the Deputy Commissioner. We strongly urge that the staff to be employed in this work should invariably be given necessary training before being posted. It is necessary that the pay of the staff should be commensurate with their work, so as to give them suitable status and to prevent the temptation to indulge in malpractices.

79. The former Punjab Government estimated that they could consolidate, on an average, about 1·5 million acres of land each year at an annual cost of 5 million rupees. At present, a consolidation fee is being charged to the landowners for the services rendered to them, varying from eight annas to four rupees on each acre of cultivated land depending on the amount of work involved, and four annas, per acre of uncultivated land. If, on an average, a fee of two rupees is recovered for every acre consolidated, a revenue of 3 million rupees each year will be yielded in the former Punjab Province. About Rs. 5 lakh each year is being spent on the existing staff and facilities devoted to this work. The net expenditure for the Plan period would, therefore, be about Rs. 7·5 million for an area of about 7·5 million acres consolidated ; this sum has been provided in the Plan.

80. There are about 20 million acres of cultivated land in the former Punjab, but all of this would not need consolidation. In the absence of estimates, it is assumed that about 70 per cent of the cultivated area, or 14 million acres, would need consolidation. The former Punjab Government estimated that another 10 million acres of uncultivated land could probably be brought under cultivation, if consolidated. The consolidation would embrace cultivated and uncultivated land in one single process. It would take 16 years to cover 24 million acres at the contemplated rate of 1·5 million acres a year. It is expected that the demand by villagers for consolidation work will increase as the work progresses with the result that the rate of coverage will have to be increased. The programme will have to be modified and if necessary accelerated, as experience is gained of the time needed, the results achieved and the reactions of the villagers. This demand developed rapidly in India, where, according to reports, the villagers are competing with one another for priority in the programme.

81. We suggest that consolidation work in the former North West Frontier Province should also start simultaneously and on the same principles as outlined above for the former Punjab. There are about 3 million acres of cultivated land in that area which, if required to be consolidated over about 10 years' time, would cost annually about Rs. 400,000 after deduction of the consolidation fee. A sum of Rs. 2 million has been tentatively provided in the Plan for this area.

82. In some parts of the country, there are large tracts of cultivable lands lying uncultivated because of the negligence of owners ; this is anomalous in a country where tenant holdings are very small. This question was considered by the Punjab Tenancy Laws Enquiry Committee, which recommended that such land should be acquired by the Government and allocated to landless tenants. The former Government of Punjab enacted the

Punjab Land Utilisation Act, 1954, under which lands which remained uncultivated for four harvests could be taken over by the Government for 10 years at a time and leased to tenants. We recommend that this legislation should be extended to other areas.

### Tenure administration

83. The problem of land reform has also educational aspects. The tenants and landlords both must be instructed in the precise extent and nature of their rights and obligations and their implications. The large social aspects of their mutual relations have to be clarified, and the need for maintaining them on a cordial co-operative basis brought home to them. The provisions of the various legislative enactments bearing on their rights against each other have to be explained to them. Education of this kind will enable the tenants and landlords not only to improve their mutual relations but also to resist any abuse by petty officials successfully. This would be social education most productive of useful results. The Village AID agency would be most appropriate for imparting such education aiming at the improvement of social and economic relations in the rural areas. But it would be necessary to have some tenure specialists at the Provincial Headquarters as well as at other strategic centres, whose duty would be to make studies of the various problems, to produce notes for general use, (especially by the Village AID officials, paying visits to rural areas to instruct the Village AID workers) and generally to acquire knowledge of actual conditions. This work may already be included among the duties of some officers but we doubt if it is being performed with sufficient zeal to ensure that knowledge is spread far and wide and produces its impact in tangible form. A sustained educational campaign is necessary : for this the Village AID Programme provides a most convenient agency as well as a favourable environment. The appointment of a few tenure specialists at strategic points would form the beginning of an experiment. Its progress would show whether it should be extended, and if so in what directions and on what lines. In Japan tenure specialist staff were of great help in making the agrarian reforms successful. There seems to be a reasonable chance that it will discover a useful role for itself in the context of the country's land reform problems.

### Research

84. To pursue and execute a sound land policy, it is necessary that the Government should have available to them accurate data of various kinds, which should be kept fully up-to-date. Measures to set up the necessary agencies for collection, compilation, and analysis of such data should be taken urgently and should not wait while the main policy questions are being considered. The policies of the Government once finally decided upon in principle would need considerable data for their detailed application on a just basis, as also for watching and evaluating their consequences. One method of obtaining such data would be by means of a complete agriculture census, which, as suggested elsewhere in this Report, will take at least five years to plan and execute, and still longer to analyse the results. We recommend that in the meantime the Central Government, in close collaboration with the Provincial Governments, should initiate a sample survey and start research along the following lines as early as possible :

(*a*) Fact-gathering to find out the actual kinds of tenancy arrangements that exist (including how the expenses of production are shared and how the output is shared), the sizes and productivities of different ownership units and of different tenant units ;

(*b*) Farm management analysis getting input and output data from different types and sizes of farms in order to determine the minimum size of unit that will, when framed efficiently, produce a given real income. This type of analysis is necessary to establish minimum limits of farming units (whether by a tenant-farmer or an owner), maximum limits to cultivation by owners, and maximum limits to the holdings one family can own. This type of research is also required for a rational and successful rural credit programme, and for an extension programme to increase yields per acre ; and

(*c*) Political and social aspects of land tenure—this is not of the highest priority now, but will become more and more important as the land tenure situation is tackled and begins to undergo changes.

85. We consider that one million rupees for fact-gathering research and a similar sum for farm management analysis would be sufficient for the five-year period. We suggest that a Central Land Reforms Committee or a Central Economic Research Committee should administer these funds by utilising all available agencies to undertake research projects. Boards of Economic Inquiry, Universities, Government research establishments, Agricultural Colleges, etc., should be entrusted with specific research projects.

### Conditions in the former Baluchistan and Baluchistan States Union

86. The agrarian problem in the former Baluchistan areas has special features owing to the tribal structure of the population and we therefore deal with it separately. Very little information is available regarding the land-ownership and tenancy conditions in the former Baluchistan Province and Baluchistan States Union. No studies or inquiries have been conducted to build up reliable information on this subject. In the former Baluchistan, land, unless owned by the Government, is held by tribes, presumably under the control of the respective *sardars*. No tribe allows a tenant from elsewhere to hold any land in its areas except occasionally, on a basis of tribal good neighbourliness.

87. It is clear from the available information that conditions in the former Baluchistan and Baluchistan States Union are semi-feudal to a greater degree than in any other part of the country: foreign observers have commented on this, and upon the lack of security of the tenants, even on Government lands. The need for reform and improvement is apparent, though it is difficult to judge whether the political and law-and-order conditions in the country are a factor to be reckoned against immediate radical reform. It is necessary, however, to guard against the danger of exaggerating the importance of this factor when considering any change in the traditional institutions.

88. We recommend action on the following lines :

(*a*) In preparation for considering the problems of land tenure at the political level, arrangements should be made to collect the necessary data regarding the conditions prevailing at present, such as the rights of tenants, the arrangements existing between the landlord and the tenants, sizes of holdings, and the economic conditions of the tenants ;

(*b*) The Government should immediately lay down the system of land tenure to be followed on government lands. The tenants should be given full rights and their holdings should be such as will enable them to become owners of their holdings after a prescribed period. Precautions should be adopted to prevent these owner-cultivators from renting land to tenants as this will lead to the re-emergence of evils which are associated with the feudal system ;

(*c*) Advantage should be taken of new irrigation water supply schemes to create new colonisation areas on Government lands in which reformed tenancy systems, directly under the guidance and control of the Government, will be established ;

(*d*) In the Nasirabad Sub-Division of Sibi district the system prevailing is similar to that in the former Sind province. We consider that the recommendations we have made for West Pakistan generally should be applied to this area fully ; and (*e*) The research surveys and studies for the purpose of collection of data which we have suggested for lands held under the tribal system should be undertaken and completed as far as possible.

### General

89. We would reiterate and emphasise that the problem of land reforms is fundamental to all development. Nearly 90 per cent of the people live in rural areas ; about 75 per cent of them depend on agriculture ; about 60 per cent of the national income is derived from agriculture. The economic and social status of this overwhelming part of the population must be raised if an independent Pakistan in the modern age is to have any meaning for them. More harm than good can be done by hiding the gravity of the problem and the ugliness of the prevailing conditions. The country cannot live in a vacuum surrounded by a world which is rapidly changing and marching forward. A dynamic situation presents itself in which merely traditional ways of thinking and acting will not avail. In the desire to maintain traditional social institutions many people try to fit their thinking into time-worn channels which lead them astray. This is wishful thinking in its most deceptive form. If the forces which are mounting and surging forward, are not closely watched the country will lose heavily. Except in East Pakistan—and even there the reform legislation has not yet been fully applied—the land problem has still to be tackled : there is no time to lose in barren efforts to achieve something without doing anything.

# SECTION B

# WATER AND POWER RESOURCES

## CHAPTER 17

# POWER, IRRIGATION AND RECLAMATION PROGRAMMES AND POLICIES

## INTRODUCTORY

1. This Chapter presents a programme to develop the water and related resources of the country, intended to produce the largest possible economic and social returns, taking into consideration the available financial, manpower, and material resources.

2. In order to put the programme into perspective, we considered it necessary to :

(a) Review the natural environment, history, and underlying purposes of past development ;

(b) Appraise the general efficiencies attained in the existing water and power development works ;

(c) Consider the magnitude of the remaining undeveloped or under-developed water resources ;

(d) Estimate emerging needs which could be served by further developments ; and

(e) Propose the direction they should take in the future.

3. For the purposes of this analysis, a separate programme has been proposed for each of the three more or less self-contained hydrologic areas of the country :

(a) The Humid Region, comprising the whole of East Pakistan ;

(b) The areas drained by the River Indus and its tributaries, and the adjoining tracts depending on the Indus river system for their water supply ; and

(c) The areas drained by coastal tributaries and desert streams, comprising most of the Quetta and Kalat Divisions and adjoining tracts.

Each of the areas specified has its own significant natural characteristics, internally-related hydrological systems, and special problems of water resources development. Each possesses its own individual character, which indicates a design of developmental works peculiar to itself. The Chapter which follows deals with each of these Regions separately.

4. In order to formulate a coherent programme, we found it necessary to devise criteria by which the relative priority of each scheme could be established. The criteria used are as follows :

(a) Evidence of adequate investigations, necessary (i) to establish an organic relationship between the proposed scheme and existing and prospective developments, and (ii) to provide the basic technical information, needed to draw logical conclusions about the soundness of the proposed scheme, and its net contribution to the economic and social welfare of the locality, the province and the whole country.

(b) Assurance that the proposed scheme is designed to meet urgent needs, which either exist or are certain to emerge by the time it is completed, and isconsistent with an orderly, persistent, and logical plan of long-range development. In applying this criterion, we had in mind the following priorities :

- (i) Proposals for bringing schemes now under execution to a timely and efficient completion.
- (ii) Execution of projects, designed to prevent cultivated areas from going out of cultivation, due to shortage of water, or unregulated flood flows.
- (iii) Reclamation of land going out of cultivation and prevention of further deterioration due to water-logging and salinity.
- (iv) Small local projects designed to increase the production of areas already cultivated.
- (v) Proposals for accelerated development activities in under-developed regions, in order to produce a balanced improvement of economic conditions and social welfare throughout the nation.
- (vi) Execution of single or multi-purpose projects for :
  - (1) urgently needed flood regulation or protective works ;
  - (2) generation and transmission of power to fulfil immediate needs ;
  - (3) irrigation of areas already cultivated ;
  - (4) irrigation of new areas ; and
  - (5) improvement of waterways for inland navigation.

Although the criteria here listed have been stated in what is considered a general order of their importance, it does not follow that those lower down the list may not take precedence over the others, for valid reasons, in specific cases. The criteria are intended only as a guide, and not a substitute for the exercise of judgement.

5. The various parts of a water development programme are intimately inter-related, and bear, as a whole, a close relationship with programmes in other sectors of the economy—agriculture, industry, transport, education, labour and employment, health and social welfare, and public administration. Without water, agricultural production would be limited. Without efficient agricultural practices, irrigation would not produce the optimum results. Power must be provided to industry to produce, among other things, the cement needed for the construction of the development works included in the programme. Efficient transport is required to deliver material and equipment on time to construction sites. Trained technicians and skilled labour are essential for the efficient execution of the works undertaken. These inter-relationships have been recognised in the programme, in order to earn the maximum returns on the investment made. As finally devised, it provides for :

(a) The completion of all works under way. In a few cases, the schedule of construction was revised when it appeared too ambitious on the basis of records of past performance, and of a general appraisal of expected conditions during the course of construction ;

(b) New works of a high priority, which appear to have been sufficiently well-planned to warrant a firm commitment to their scheduled development ;

(c) Some schemes of a high priority, on which investigations had not been completed, but which held reasonable promise of engineering practicability and economic feasibility. For these, funds have been scheduled for the completion of investigations, and provision made tentatively for construction in the later years of the programme. Such schemes will need to be reviewed after completion of the investigations, and before starting construction.

6. As forecasts of the availability of the necessary resources could be made only with a limited degree of precision, and as investigations alone will determine the feasibility of some of the schemes now being planned, it was necessary that the programme should be made flexible. The list of schemes included should be reviewed from time to time during the Plan period, in order to remove such schemes as further investigations may prove unsound, and to add new schemes which may be found to have a high priority. Such flexibility is considered essential, if full advantage is to be taken of the resources which become available from time to time for investment in water resource development. A reserve of well-planned schemes, a systematic and periodical review of the programme, adequate allowances for schemes under way or definitely committed, and annual decisions by the Government on starting construction of new schemes, should, taken together, meet the demands of flexibility, and constitute the essentials for the success of the programme.

### Performance since independence

7. The water and power development projects undertaken during 1947—55 were estimated to cost, when completed, a total of Rs. 2,592 million, of which multi-purpose development accounted for about 26 per cent, irrigation 53 per cent, flood regulation and drainage about 2 per cent, and power 19 per cent. By regions, a little over 78 per cent is for schemes in the Indus Basin, 22 per cent for those in the Humid Region, and less than 0·3 per cent in the area drained by the coastal tributaries and desert streams.

8. The total expenditure on these projects, up to March 1955, was estimated at Rs. 1,067 million. The figures are given in Table 1. A major part of the total cost is expected to be spent during the Plan period, and the balance after 1960. The estimated expenditure up to March 1955, was about 41 per cent of the total estimated cost of the schemes under way since independence. The proportion of this expenditure is as below :

| | (Per cent) |
|---|---|
| Multi-purpose | 7 |
| Irrigation | 64 |
| Flood regulation and drainage | 3 |
| Power | 26 |
| Total | 100 |

### TABLE 1

*Water and power resources development*, 1947—55.

| Zone | Estimated total cost | Estimated expenditure upto March, 1955 | Accomplishment | | | Power |
|---|---|---|---|---|---|---|
| | | | Area irrigated | Area reclaimed | Area drained | |
| | (Million rupees) | | (Thousand acres) | | | (KW) |
| *The Humid Region—East Pakistan* | | | | | | |
| Multi-purpose development ... ... | 446·5 | 41·2 | ... | ... | ... | ... |
| Irrigation ... ... ... ... | 0·6 | 0·4 | ... | ... | ... | ... |
| Flood regulation and drainage ... | 41·2 | 29·9 | ... | ... | 423 | ... |
| Power ... ... ... ... | 74·1 | 22·1 | ... | ... | ... | 11,851 |
| Total ... | 562·4 | 93·6 | ... | ... | 423 | 11,851 |
| *The Indus & tributaries* | | | | | | |
| Multi-purpose development ... ... | 231·6 | 37·1 | ... | ... | ... | ... |
| Irrigation ... ... ... ... | 1375·2 | 673·4 | 810 | 185 | ... | ... |
| Power ... ... ... ... | 415·8 | 258·2 | ... | ... | ... | 89,942 |
| Total ... | 2022·6 | 968·7 | 810 | 185 | ... | 89,942 |
| *Coastal tributaries & Desert streams* | | | | | | |
| Irrigation ... ... ... ... | 7·2 | 5·0 | 8 | ... | ... | ... |
| Grand Total ... | 2592·2 | 1067·3 | 818 | 185 | 423 | 101,793 |

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9. The multi-purpose schemes were started later than the others. They require a considerable time for execution, and do not, as a rule, produce major results until a substantial portion of construction has been completed: some will come into service during the Plan period, others only later. The irrigation schemes, on which most of the money was spent, have provided irrigation facilities to 818,000 acres of land of which 810,000 are in the Indus Basin, and reclaimed 185,000 acres in that region. The balance of about 8,000 acres irrigated lie in the area drained by the coastal tributaries and desert streams. Flood regulation and drainage facilities were provided to about 423,000 acres of land, all in East Pakistan. These have been designed to maintain and increase the productive

capacity of the land. A total of about 102,000 k w of generating capacity in public utilities was installed in the whole country during the period 1947—55, about 90,000 in the Indus Basin and 12,000 in East Pakistan. No significant installations were made in the area drained by the coastal tributaries and desert streams during the period.

10. The estimated total cost of schemes under development since independence, the estimated expenditure on them up to March 1955, and their results are summarised in Table 1.

11. Benefits from water and power schemes in the Plan period will come partly from those already under way in 1955 and partly from those begun during the Plan period and at least part finished by 1960. Irrigation is expected to be provided to about 5·6 million acres of land during the Plan period, of which about half had never been cultivated previously and the other half will receive improved water supplies. In addition, 564,000 acres of land will be reclaimed, and over 1·4 million acres safeguarded, and their production increased by adequate drainage and flood protection works. It is planned to instal over 600,000 kw of generating capacity during the Plan period, together with the transmission and distribution facilities necessary to deliver power to the consumers. The present average generation of 7 units *per capita* should rise to 22·5 by 1960. Figures showing the estimated results in terms of acres and kilowatts are given in Table 2.

### TABLE 2

*Water and power resources development, results expected in the Plan period.*

| | Results expected during the Plan period | | | | |
|---|---|---|---|---|---|
| | Area Irrigated | | Area reclaimed | Area drained | Power |
| | (a) new | (b) old | | | |
| | (Thousand acres) | | | | (kw) |
| *The Humid Region—East Pakistan* | | | | | |
| General investigation | ... | ... | ... | ... | ... |
| Multi-purpose development | 140 | 200 | ... | ... | 90,000 |
| Irrigation | 25 | 52 | ... | ... | ... |
| Flood regulation and drainage | ... | ... | ... | 1,428 | ... |
| Power | ... | ... | ... | ... | 79,471 |
| Total | 165 | 252 | ... | 1,428 | 169,471 |

TABLE 2—*contd.*

| | Results expected during the Plan period | | | | |
|---|---|---|---|---|---|
| | Area Irrigated | | Area reclaimed | Area drained | Power |
| | (a) new | (b) old | | | |
| | (Thousand acres) | | | | (KW) |
| *The Indus and tributaries* | | | | | |
| General investigation | ... | ... | ... | ... | ... |
| Multi-purpose development | 120 | 112 | ... | ... | 164,000 |
| Irrigation | 2,225 | 2,571 | 564 | ... | ... |
| Power | ... | ... | ... | ... | 266,850 |
| Total | 2,345 | 2,683 | 564 | ... | 430,850 |
| *Coastal tributaries & Desert streams* | | | | | |
| General investigation | ... | ... | ... | ... | ... |
| Irrigation | 138 | 48 | ... | ... | ... |
| Power | ... | ... | ... | ... | 1,225 |
| Total | 138 | 48 | ... | ... | 1,225 |
| Grand Total | 2,648 | 2,983 | 564 | 1,428 | 601,546 |

(*a*) New Irrigation.
(*b*) Improvement of irrigation facilities.

12. In the Indus Region, about 5 million acres will be provided with irrigation facilities, 564,000 acres reclaimed, and 431,000 k w of power generating capacity installed. In East Pakistan, about 420,000 acres will be provided with irrigation in the dry season, to permit of double and triple cropping. This will be in the nature of new development in this region. Also, over 1·4 million acres will be protected through flood regulation and drainage works, resulting in permanently increased production, and about 169,000 kw of power generating capacity installed. In the area drained by the coastal tributaries and desert streams, about

190,000 acres of land will be served by irrigation facilities, and 1,200 kw of power generating capacity installed. If the programme for increasing power capacity is achieved, it will be possible to meet demand in full, though the shortage of reserve will not permit a high and assured standard of service until the later years of the Plan period.

13. Our proposals mean a substantial acceleration in expenditure on the development of water and power resources. The proposed expenditure increases from Rs. 376 million in 1955-56 to Rs. 579 million in 1959-60, which represents a rate of acceleration of about 43 per cent between the first and the last year of the Plan period. Taking the three hydrologic regions separately, however, there is a striking disparity in the rates of programme acceleration.

14. In East Pakistan, the estimated expenditure of Rs. 71 million in 1955-56 is expected to increase to Rs. 154 million in 1959-60. This rate of acceleration—doubling over the Plan period—is much faster than anywhere else in the country. It will mean a very great measure of progress in what has frequently been regarded as a relatively neglected area.

This large measure will be mainly the result of constructing the Karnafuli and Ganges-Kobadak multi-purpose schemes ; it will require extensive expansion and improvement of organisation and procedures, and practically doubling the supply of highly specialised skills. These resources, not finance, set the limit to the programme in East Pakistan.

15. The attainment of the programme now proposed for East Pakistan will fulfil the minimum requirements for power, but barely meet those for increased agricultural production. If progress in the first two years comes up to expectations we recommend that the programme should be enlarged by advancing the schedule for the second unit of the Ganges-Kobadak, and expanding the flood regulation and drainage programme. This would require further expansion and improvement of organisation, more highly-specialised skills, and, most important of all, sound plans. Provision has been made in the programme for initiating general investigations for water and power resources development ; we should like to see plans based on them, with adequate provision for further expansion as resources permit. We hope the East Pakistan Government will be able to bring forward new detailed schemes, specially for flood regulation and drainage, within the Plan period.

16. In the Indus Basin, the estimated expenditure of Rs. 299 million in 1955-56 is expected to increase to about Rs. 407 million in 1959-60, an acceleration of about one third. Most of the schemes have already been organised and are well under way, and the prospects of reaching the targets appear to be fair.

17. In the Region drained by the Coastal tributaries and desert streams, the estimated expenditure of Rs. 6 million in 1955-56 is expected to increase to Rs. 18 million by 1959-60—an acceleration of 200 per cent over the Plan period. As elsewhere, the time required for organisation, training and planning for development will constitute the major limitation.

18. The construction of physical facilities is only a means to several ends. Results can be registered only when power is delivered to the point of use, and agricultural production increased on lands to which services have been provided. This means the need for coordinated effort to ensure that colonisation, settlement, and better cultivation practices are advanced in step with the construction itself, to achieve the ends in view.

19. We estimate the total expenditure on all the specific schemes included in the Plan, and on those already started and to be continued during the Plan period, at 4,859 million rupees. The estimated expenditure on schemes already started had approached 1000

million rupees by March, 1955 ; total expenditure on all water and power projects now included in the Plan is expected to be about 2,600 million rupees during 1955—60, leaving some 1,400 million rupees, about two years' work at the expected rate of 1960, to be spent on completing the programme after 1960. The figures are given in Table 3.

### TABLE 3

*Water and power resources development in the Plan period, abstract of the programme requirements*

| Zone | Total cost | Estimated expenditure up to March 1955 | Expenditure estimates for | | | | | | Total Balance to complete |
|---|---|---|---|---|---|---|---|---|---|
| | | | 1955-56 | 1956-57 | 1957-58 | 1958-59 | 1959-60 | 1955—60 | |
| | | | | | (Million rupees) | | | | |
| *The Humid Region—East Pakistan* | | | | | | | | | |
| General investigation ... | 5·9 | ... | 0·5 | 0·7 | 1·1 | 1·7 | 1·9 | 5·9 | ... |
| Multi-purpose development | 653·6 | 41·1 | 31·8 | 84·3 | 94·1 | 104·3 | 109·8 | 42·43 | 188·2 |
| Irrigation ... ... | 30·3 | 0·4 | 0·2 | 3·5 | 6·2 | 8·5 | 11·5 | 29·9 | ... |
| Flood regulation and drainage. | 121·5 | 21·5 | 11·8 | 19·4 | 24·3 | 22·5 | 22·0 | 100·0 | ... |
| Power ... ... | 127·7 | 21·1 | 26·8 | 31·1 | 24·8 | 15·5 | 8·4 | 106·6 | ... |
| Total ... | 939·0 | 84·1 | 71·1 | 139·0 | 150·5 | 152·5 | 153·6 | 666·7 | 188·2 |
| *The Indus and tributaries* | | | | | | | | | |
| General investigation ... | 111·8 | 0·9 | 11·1 | 22·1 | 23·2 | 24·1 | 25·8 | 106·3 | 4·6 |
| Multi-purpose development | 1265·1 | 43·2 | 41·4 | 104·8 | 152·5 | 177·7 | 194·7 | 671·1 | 550·8 |
| Irrigation ... ... | 1707·8 | 496·3 | 158·4 | 140·9 | 109·7 | 125·5 | 133·1 | 667·6 | 543·9 |
| Power ... ... | 671·4 | 233·1 | 87·7 | 103·3 | 111·9 | 75·2 | 53·3 | 431·4 | 6·9 |
| Total ... | 3756·1 | 773·5 | 298·6 | 371·1 | 397·3 | 402·5 | 406·9 | 1876·4 | 1106·2 |
| *Coastal tributaries and desert streams* | | | | | | | | | |
| General investigation ... | 5·6 | ... | 0·3 | 1·0 | 1·8 | 1·1 | 1·4 | 5·6 | ... |
| Irrigation ... ... | 155·2 | 2·5 | 5·7 | 4·7 | 9·2 | 13·1 | 16·7 | 49·4 | 103·3 |
| Power ... ... | 2·9 | ... | 0·1 | 1·5 | 1·0 | 0·3 | ... | 2·9 | ... |
| Total ... | 163·7 | 2·5 | 6·1 | 7·2 | 12·0 | 14·5 | 18·1 | 57·9 | 103·3 |
| Grand Total ... | 4858·8 | 860·1 | 375·8 | 517·3 | 559·8 | 569·5 | 578·6 | 2601·0 | 1397·7 |

20. The total estimated expenditure during the Plan period can be summarised as follows :

| | (Million rupees) |
|---|---|
| Multi-purpose schemes ... ... ... ... ... ... ... | 1,095 |
| Irrigation ... ... ... ... ... ... ... ... | 747 |
| Flood control and drainage ... ... ... ... ... ... | 100 |
| Power ... ... ... ... ... ... ... ... | 541 |
| General investigations ... ... ... ... ... ... ... | 118 |
| Total ... | 2,601 |

**Organisation for water and related resources development**

21. When physical, financial, and other resources are plentiful, and the needs simple and localised, isolated single-purpose schemes may be suitable methods of development. When, however, resources are scarce and a number of needs may be served by a single investment, very careful investigation is needed to determine how far any of the possible purposes—irrigation, flood control, power supply, navigation or any other—shall be served. Experience has shown that the planning of comprehensive and long-range schemes of multi-purpose development, the design and construction of integrated systems based on these plans, and their co-ordinated operation, are the keys to the production of the greatest values at the least cost. Experience has shown also that a single agency can best direct the preparation of the plans, the construction of the works involved, and the subsequent operation of the system as a whole for the efficient discharge of all the purposes of the schemes.

22. West Pakistan has large and untapped sources of water power, which, if properly developed, could yield very cheap electricity. It would be quite impossible, however, to segregate hydro—generation of power from the use of water resources for other purposes such as flood control, irrigation, salinity control, and navigation. There are a number of dam sites in West Pakistan for the creation of storage reservoirs, which, with adequate corrective works, would not only provide a more or less effective solution to the problem of frequent and disastrous floods, but in addition conserve large volumes of water, now going down to waste in the sea, to be used for irrigation and power generation, both of which are basic requirements for the production of food and raw materials and for industrialisation. They would also offer opportunities of improving the fish supply.

23. The river system of East Pakistan has different characteristics from those of the Indus basin, and the relative priorities of the purposes to be served also differ widely between the two regions. While irrigation for double and triple cropping is as important in East as in West Pakistan, the flood-regulation problems are different in nature, and navigation benefits from water development schemes in East Pakistan are of much greater significance. This points to the need for evolving different types of plans for the development of the water and power resources in each wing. Such developments, however, appear to have one important factor in common, that the river system in each region should be considered as a whole, and all development should be co-ordinated, in planning, in execution and in operation, in order to be of maximum service to the various purposes in view.

24. A statutory public agency should be appointed in each wing charged with these general co-ordinating responsibilities. This agency should submit a general plan for development, a budget and report each year, for the approval of the Provincial Government. It should be charged with the responsibilities of administering the expenditures sanctioned subject to post-audit by the Government, should have full powers to enter into contracts with departments of the Government or others, to make purchase of plant, machinery and equipment, to acquire, through processes of law, movable and immovable property, and to dispose off water and power under charges approved by the Government. When the Provincial Ministries of Natural Resources proposed in the Chapter on Public Administration are established, it is to them that the public agency should be responsible.

### General investigation

25. In West Pakistan, the undeveloped water resources are limited, except in the field of hydro electricity. Further development, and improvement of efficiencies of the existing systems, are even more difficult and costly than the elaborate and intricate systems of works that exist. The needs which can be served by such remaining resources are pressing and urgent, not only for improving the economy of the region, but, in fact, for maintaining it. In East Pakistan, although the total volume of water resources available are enormous, the relative proportion of the total supply which can be effectively used is small. Low flows of the rivers during the dry season could well be used for substantial increases in production. Damages due to excessive floods could substantially be reduced, and there is vast scope for improvement in drainage, which would increase the total acreage of arable land. Establishment of measures for control and improvement of the channels, in a manner consistent with the natural process of delta formation, would also increase production, and, at the same time, improve the efficiency of transport and communications. Measures to repel the invasions of salt sea water in the tidal areas would reclaim many acres of land now lying idle.

26. The urgency of planning developments in both Wings has been recognised, but attention has so far been focussed on specific schemes to serve the most immediate needs, and to fit them expediently into the existing systems. Little time and means have, however, been available to relate the specific schemes to a long-range comprehensive plan for the optimum development of the water resources, or to develop such a plan. While the expedient must be served, there is the danger of the possible foreclosure of worth-while long-range development. This danger can be reduced by undertaking a programme of comprehensive investigations of water and related resources, and establishing an organisation for the purpose at the earliest possible date, one in each wing. It should, in addition, be responsible for findings of engineering practicability and economic feasibility of specific schemes for water and related resources development. The organisation should, in the first instance, be attached to the Irrigation Department and subsequently to the statutory public agency recommended in para 24, as soon as it is established. The following terms of reference are suggested for this organisation :

(1) **Survey of resources**

(*a*) Assess the adequacy of the available basic information, such as geological data, general purposes geological and topographic maps, soil surveys, land classification surveys, and hydrologic data and records ;

(*b*) Determine the additional data required for the purposes of the comprehensive plan ;

(*c*) Devise methods, standards, procedures and schedules for acquiring additional basic data ;

(*d*) Administer contracts with other agencies for the acquisition of basic data in accordance with prescribed standards and schedules ;

(*e*) Direct the acquisition of basic data, which cannot be acquired by contract ;

(*f*) Analyse the available data, and determine the magnitude, quality, nature and location of the undeveloped water, land and related resources available for long-range development.

**(2) Assessment of needs**

(*a*) Appraise required additional agricultural production, and the volume of water required for the purpose, in co-operation with agencies of the Ministry of Agriculture ;

(*b*) Appraise requirements for power and fuel in co-operation with agencies of the Ministries of Industries and Commerce ;

(*c*) Appraise municipal and industrial water requirements in co-operation with the Ministries of Industries and Commerce and with local communities ;

(*d*) Appraise required minimum flows in streams and waterways, and the necessary structural clearances, to support navigation in co-operation with the agencies of the Ministries of Industries, Communications and Public Works ;

(*e*) Determine the maximum tolerable flows, at critical points in the streams, to minimise destruction of life and property by floods ;

(*f*) Determine the minimum flows, and the nature and time of flows at critical points in the streams, and the desirable operating rules for reservoirs, to preserve and enhance inland fisheries, in co-operation with agencies of the Ministries of Agriculture and Commerce ;

(*g*) Appraise the need for the provision of recreational opportunities near water developments, in co-operation with the agencies of the local government ;

(*h*) Recognise the incidence of water-borne diseases and their causes, and appraise the minimum stream flows and operating methods, required to minimise the incidence, in co-operation with agencies of the Ministry of Public Health ;

(*i*) Recommend guiding rules of priority in the service of water developments to useful purposes.

**(3) Devising a comprehensive development plan for water and related resources**

(*a*) Consider the efficiency in service of existing developments, and devise methods of increasing that efficiency, in order to :

- (i) reduce preventable losses in water transportation ;
- (ii) Induce free drainage and rapid return flows to streams ;
- (iii) minimise areas of excessive losses through transpiration and evaporation by draining ponded areas ;
- (iv) devise methods of encouraging more efficient use of water on lands.

(*b*) Appraise the probable effectiveness of developments under construction, and those planned for development, and consider any adjustments to the plans that may increase the efficiency of the system as a whole ;

(*c*) Devise general long-range plans of additional facilities to the existing systems, which would develop the remaining water and related resources to satisfy appraised needs, each in the order of priority and as those needs emerge ;

(*d*) Analyse the general engineering and financial practicability, and general economic feasibility of the long-range plan, in the service of local and national economic needs ;

(*e*) Prepare definite plans for, and appraise the engineering and financial practicability and economic feasibility of specific schemes proposed for development in the programme period ;

(*f*) Devise operating rules for the co-ordinated and integrated system of works contemplated in the long-range plan, to produce the greatest service to worthy purposes, each in the order of established priority ;

(*g*) Review continually the long-range plan, and the desirability of modifying the priorities of specific schemes, in consideration of changing conditions.

The completion of the first draft of a long-range plan for water and related resources development will take considerable time, and probably could not be done during the Plan period, though information accumulated in the process of the general investigations outlined above would be of immense value as soon as it becomes available. Many of the essential data are long overdue.

**Carrying out the programme**

27. If a programme of the size we recommend is to be carried out, it will require a further delegation of authority, elimination of the delays now imposed by administrative procedures, an increase in the use of those resources which are abundant, particularly unskilled labour, and a limit on the use of scarce foreign exchange and therefore on mechanisation of construction. Most of these considerations apply equally to other fields, but they need to be particularly emphasised in the case of water and power development because of the size of the programme—nearly one-third of total development expenditures—and the crucial significance of developments in the water and power field for the success of the entire process of economic development.

28. The larger the programme, the greater is the number of decisions which must be made promptly, if the programme is to proceed efficiently, and costly delays are to be avoided. It is physically impossible for a few people to make all the necessary timely decisions involved in a programme as ambitious as the one we propose in the field of water and power development—extreme delegation is essential. Authority withheld should be reduced to the barest minimum and be clearly defined. We recognise that the greater the amount of delegation the greater the possibilities of abuse, especially in a field requiring extensive and costly engineering works and large-scale contracts. But these can be kept to a minimum by a clear definition and interpretation of general controlling policies ; a guiding manual of general standards, methods, and procedures ; a specific plan of procedure ; and establishment of a system of independent field inspections and post-audits. We must also recognise that centralisation of authority has often not prevented abuses. There is no alternative to decentralisation, if the programme is to be carried out.

29. The unnecessary delays which often hamper development are particularly dangerous in this field. They seriously affect both progress and costs and generally appear in the following forms :

(*a*) Interminable debates on policy and technical opinions ;

(*b*) Numerous and specific sanctions for proposed actions ;

(*c*) Detailed and precise pre-audit of proposed expenditures ; and

(*d*) Time-consuming, laborious and costly procedures in the procurement of services, equipment, materials and import licences.

The present plan could and should be the first stage of a long-term policy for the development of natural resources. The precedures adopted now will therefore have far-reaching consequences. Schemes embodied in the Plan should be reviewed annually, and no firm commitments should be made until definite plans, including findings of feasibility, have been approved by the Government. But decisions on the plans and designs once made should end debate, and construction should proceed in accordance with them ; from that stage delays should be tolerated only for the most compelling reasons.

30. Developments in this field, particularly irrigation and drainage works, often have clearly defined benefits to particular groups. Our general recommendation that groups benefiting from particular developments should expect to return some of that benefit to the Government, applies with particular force in these cases. This recommendation can be carried out by the imposition of betterment or other increased taxes on the land improved ; by charging suitable rates for services provided by the Government ; or by requiring a contribution of labour, land, or local materials from the community that will benefit. Large opportunities for the latter may be found in small water development schemes such as increasing the efficiency of *karezes* and small canals, and the construction of simple deversion works, drains, bunds, and small but permanent outlet structures. The period of construction would be short and its schedule could be made to accommodate availability of local labour, equipment, and material. The returns in increased production would be quick and local in nature, which would attract the participation of the people concerned.

31. The Village AID programme would be effective in promoting and organising such local efforts with the help of the Irrigation Departments. Because of the limited outlay, and the prospects of quick returns, small water development schemes deserve a high priority. With good organisation and programmes calculated to appeal to the imagination of the people and to arouse their patriotic enthusiasm, contributions of local labour could be absorbed in large works also. This has been done with success in other countries ; the people of this country have great capacity for sacrifice in a good cause.

32. Regardless of whether local labour and materials are provided by the beneficiaries of a scheme or have to be paid for by the Government, they represent an abundant resource which should be used to the maximum while the machinery and imported materials which can replace them require one of the scarcest resources—foreign exchange. There is a natural tendency to prefer complete mechanisation to the use of hand labour, without considering the relative costs of labour and machinery in real terms. Where there is a choice between machinery and local labour to accomplish a particular task, two factors need to be kept in mind in appraising their relative advantages :

(*a*) Foreign exchange is particularly scarce for the country as a whole, and machinery costing foreign exchange must be economised. On the other hand, the true cost to the country of unskilled labour is less than the rupee cost to a particular scheme, because there is much labour that is not fully employed.

(*b*) It is generally recognised that the complete benefits of machinery are derived only if it can be used fully ; this requires such things as qualified operators, prompt and adequate maintenance, efficient access roads, and plant layout and management that permit the efficient use of machines. In comparing the costs and benefits of equipment, its use under optimum conditions cannot be assumed The costs of machinery and labour should, therefore, be weighed on both points, and the balanced use of equipment and labour assessed for each item of work, before additional machinery or other imports can be considered a sound investment. Detailed instructions on these points should be prepared by the Central and Provincial Governments and issued for the guidance of their officers.

### Water and power charges

33. An effective and comprehensive scheme for irrigation may depend on the balanced use of pumped and gravity-fed water ; different charges for the two will prevent this balance, and special adjustments of the water and power charges may be necessary. Water rates combining a fixed demand charge with a volumetric charge should foster efficient and conservative use of developed water supplies. The demand charge may entitle the user to a stated minimum volume of water. Additional water supplies may be delivered at an increased rate up to the average amount required for optimum crop production, and at sharply increased rates for any water above that amount. The charge for additional water delivered should provide incentive to adopting ways and means of saving water. The higher rate for water in excess of requirements for optimum production is justified as a penalty for waste. Power rates for water pumping should take full account of the economics of off-peak supply, as well as of the problem of balancing pumped and gravity-fed water supplies to achieve the full benefits of irrigation to the community.

34. Cheap power is essential to the immediate economics of ground water pumping, and the sale of energy during off-peak hours at a low rate is economically sound because the system is under-employed during those hours. Some minor facilities such as small regulating tanks may be necessary to use off-peak energy for ground water pumping.

### Agricultural use of water

35. The total water resource available in the country is inadequate to ensure the maximum agricultural production from all the good-quality lands that could be cultivated. Even in East Pakistan, the low flows of the rivers during the dry season are not enough to permit the double or triple-cropping of all the cultivable lands. Because water is the limiting factor, such supplies as can be made available must be put to the most productive use. Irrigation implies the practical and economic regulation of water supplies in quantity and time to coincide with crop requirements. It includes the reduction of transport losses to an economic minimum. It requires competent management and distribution of water on the lands. But, most important of all, it demands the effective disposal of surplus water, both surface and underground, in order to maintain the productivity of the land and to reserve the surpluses for future use. The efficiency of an irrigation system is measured by the gross production value of the lands per acre-foot of water applied, assuming efficient cultivative practices, such as crop rotation, good seeds and adequate fertilisers, which are essential if the huge investments in the irrigation system are to yield the maximum results.

36. In laying out a new irrigation system, the designer is not confronted with the problems of investments already made, and the costs of remodelling existing works. If the general magnitude and timing of the water supply available are known, a survey usually discloses alternate bodies of land which may be served, and at what approximate cost. The least economic areas having been eliminated, a choice can be made of the remaining areas to be irrigated through an intensive land classification. For this purpose it is necessary to make a detailed analysis of the physical and chemical properties of the soils and a study of the topography of the land and its possible drainage, both surface and sub-surface, to determine the extent to which natural drainage must be supplemented. It is then necessary to consider the possible cropping patterns suitable to the area, to study the probable response to irrigation in the productivity of the area, the value of the increased

production, the markets available for the produce, the costs of production, the probable size of economic farm units, and so to arrive at a reasonably accurate estimate of the water requirements to produce the greatest value in yield per acre-foot of water applied.

37. The proposed area is then generally adjusted, and the cropping pattern modified to fit the water requirements to the supply available in quantity and in time, under the rule of optimum production. The resulting irrigation system should, further, permit future modification and expansion towards the ideal, in expectation of possible improvements in water supply in quantity or time of delivery. Full economic use of the water supply is justified even if this should involve canal capacities in excess of average water yields. Such a practice reduces the amount of water going to waste in the sea. It does not appear necessary or desirable that all irrigated lands under the command of a canal system should share shortages equally in years of less than average water supply. Cropping patterns and farm unit sizes may be designed for selected blocks of the best lands, which would enjoy the full use of the less-than-average water supply. Surplus water, in average and above-average years, could then be delivered to much larger units with cropping patterns more tolerant of variations in water supply, such as wheat and established forests. Some such plans, designed to make the best use of the water supply, would provide for intensive use of the firm supplies available, and yet conserve and use the non-recurring flows of the rivers. The small units of intensively cultivated lands, together with the large units using surplus waters, should provide the best settlement opportunities, consistent with the maximum production per acre-foot of water used. Forests may be established during the early years of development, when settlement is in progress on the better quality lands in the area, and water demands have not overtaken water supplies available from the system. To sum up, traditional or rule-of-thumb duties of water, and assumptions of traditional cropping patterns and cultivative practices, should not be imported and applied to new areas, if the effective utilisation of the remaining water resources is the goal.

38. In the areas already under irrigation, protection and enhancement of past developments are of primary importance, in order to maintain their benefits. The various problems involved, requiring changes in methods and modifications in the system of works, are tremendous, and cannot be solved in their entirety during the Plan period. A well-conceived plan of improvements, based on investigations and studies, similar to those described for the new areas, and a long-range, persistent, and orderly schedule of accomplishment, area by area, should reduce the 'tremendous' to the 'possible'. Improvement of cultivative practices and efficient drainage appear to be the most significant problems to be tackled. The former may be achieved through the extension of technical services to the cultivator. Efficient drainage should employ all possible means, such as ground-water pumping, construction of surface and sub-surface drains, reduction of the transmission and distribution losses, and improving the flexibility of water deliveries. Losses can be reduced over time by dividing up the system, determining areas of greatest loss, and applying measures to reduce the losses there first.

39. Co-ordinated measures for the recovery and dilution of drainage water, and of pumped ground water, and the eventual regulation of the total surface supplies, are necessary for providing an assured water supply for intensive cultivation. Plans should be developed for the effective use of these supplies as they become available.

40. The productivity of the land influences the enonomic size of the farm unit. Water supply and its efficient use affect the productivity of the land. A rational solution of the problem of the size of tenancy holdings therefore depends, among other things, on improvements in the irrigation system. Hence, the evolution of logical plans and schedules for such improvements is urgent from this point of view also.

41. The reclamation of saline and waterlogged lands must be given an important place in the development of land and water resources. The present rate of deterioration of the soil demands that the problem of salt infestation and high water table should receive more attention than in the past. Millions of acres of land need reclamation. The resources of the country are, however, limited and demand the most careful use. At the same time, land cannot be allowed to remain unattended for too long because of the danger that its eventual reclamation would become uneconomical. Reclamation techniques should, therefore, be evolved for all categories of land. The priority of the areas to be reclaimed should be so fixed as to achieve the maximum efficiency. The reclamation measures, to be effective and permanent, should include (*a*) the provision of supplies for leaching out the accumulated salts, (*b*) adequate supplies to meet the consumptive use requirements, (*c*) additional water to maintain a continuous downward movement of salts, (*d*) suitable cropping patterns, and, above all, (*e*) adequate drainage. Neither the resources of the Government nor the collective resources of the cultivators are, by themselves, adequate to accomplish an effective reclamation programme. But the combined resources of both may accomplish the purpose. The Government may construct, operate, and maintain improvements to the water supply, distribution and drainage systems, which are beyond the collective or individual capacities of the cultivators. The Government may also extend technical services and long term credit to the cultivators, for performing their part of the work. Cultivators should adopt efficient practices, and construct, operate, and maintain such works as they can, collectively or as individuals.

42. Whenever more or better water supplies are introduced into an area, new possibilities for settlement are created, and should be exploited as soon as possible both to raise agricultural production, and to find water for the large numbers of unemployed and under-employed people now on the land. The quality of the land, the water supply, the cropping patterns adopted, the economic size of farms, and the location, size and the nature of the proposed villages and community facilities all affect the location and design of canals and distributaries. The plans for colonisation and community development, on the one hand and those for the completion of structural works, on the other, must as far as possible, be synchronised.

43. Vast areas still remain to be colonised on the lands served by such completed projects as the Sukkur, the Jinnah and Ghulam Mohammed and their canal systems; The Taunsa and Gudu barrages, and the Ganges-Kobdak project, will provide extensive opportunities for settlement and improvements in existing conditions. Plans for colonisation and improvements should be accelerated in order to reduce delays in the preparation of plans for the construction of the new or re-modelled canal systems, so that, as soon as water becomes available at the barrages or the pumping plants, it should be put to immediate productive use. This is particularly true because schemes of this type lock up very large resources during the long time it takes to complete construction. The same principle applies to the smaller schemes. Reclaimed lands also require similar treatment. The resources available for investment are so limited, and accelerated economic development is so essential that the lag between the investments and the final returns must be reduced to the absolute minimum.

## Research

44. Effective organisation of research, in the field of water and power resources development, is essential to provide a sound base for policy, to ensure the application of the best practices in development, and to promote the most efficient use of the developed resources. The country possesses a number of institutes and laboratories, where research is being conducted on various aspects of water resource, development and use. There

are, for example, the Punjab Irrigation Research Institute, the laboratories of the Directorate of Land Reclamation and of the Building and Roads Branch at Lahore, the Hydraulic Research Laboratory at Dacca, and laboratories attached to agricultural colleges. Investigations under field conditions are being carried out at a number of experimental agricultural and reclamation farms. Unfortunately, no research is being done at the engineering colleges and universities, and there is a lack of positive co-ordination between the research activities at the different centres.

45. Although these isolated research activities have been in progress for a long time, future developments should be accelerated by directing the investigations towards specific goals, by co-ordinating the work of the many agencies that now exist, and by balancing the theoretical with the practical approach. As a preliminary, a critical and constructive appraisal should be made of the kind and quality of work being done by the various agencies with a view to determining the best means by which they could integrate their activities to serve the future requirements of research. It is essential that regional research laboratories are established throughout the country but, in order to eliminate unnecessary duplication and avoid waste, the facilities for specialised equipment and national leadership in each field should be sited where the local conditions are most favourable for such research.

46. All research should maintain a close relation with the practical problems of water resource development and use. This can be ensured through co-operation between the executive departments and the research institutes. Although the departments must continue research in specialised fields within their specific responsibilities, it is desirable that, in order to get the utmost benefit out of research institutes, they should be located at the universities, to the advantage of both. The university would gain by affording opportunities to post-graduate students and research staff to work in the laboratories of the research institute, and the staff of the latter would gain by contact with the wider research work under way in the general atmosphere of the university. Universities and colleges should also be equipped and organised to undertake general research on their own account, as well as on specific practical problems remitted to them.

47. Some of the important fields of study, in which research is urgently needed, are indicated in the following list:

(1) *Agriculture*

- (*a*) Further investigation of optimum water requirements of crops, as a function of soil type and fertility, climate, growth density, and methods of irrigation and cultivation.
- (*b*) Evolution of crops with a short growing season, which could be matured on flood supply.
- (*c*) Tolerance of crops to salinity and/or water-logging, and development of strains resistant to excessive moisture and salts.
- (*d*) Safe limits of salts in saline water, and the conditions under which saline water may be used.

(2) *Hydraulic*

- (*a*) Efficient means of reducing losses in transport of water.
- (*b*) Variation of evapo-transpiration losses in space and time.
- (*c*) Mechanics of gains and losses in stream flow.
- (*d*) The effect of floods on regeneration.
- (*e*) Qualitative and quantitative distribution of silt loads in rivers and canals, and their variation in space and time.

(3) *Subterranean supplies and drainage*

- (*a*) Effects of river and canal supplies on the quality and quantity of ground water.
- (*b*) Determination of the optimum depth and spacing of drains in different soil and sub-soil types.

(4) *Electrical*

- (*a*) Determination of system stability, power losses, etc., on network analysers, for the existing and proposed high voltage grids, in order to secure the conditions of optimum efficiency.
- (*b*) Study of the practicability and economics of using poles of materials other than steel, like concrete, and indigenous wood, for power transmission lines.
- (*c*) Investigations for harnessing the power potential of wind velocities, solar and atomic energy etc., not only for the generation of electricity but also for other useful purposes.

48. Great difficulties have been experienced in securing the services of capable men for research posts, and unless attractive terms are offered, it will be impossible to recruit men of high calibre. Their salaries and status should compare favourably with those of officers of the administrative departments, and they should be given liberal opportunities to visit foreign institutes to acquaint themselves with the latest techniques, to exchange experience, and to establish personal contacts with workers in their particular fields.

49. The main responsibility in each Wing for all these tasks would lie primarily with the water and power development agencies proposed in para. 24 above, and with the Ministries of Natural Resources suggested in the Chapter on Public Administration.

# CHAPTER 18

# REGIONAL WATER AND POWER DEVELOPMENT PROGRAMMES

## INTRODUCTORY

1. As indicated in Chapter 17, the country can be divided into three very different hydrological regions for purposes of water and power development. In this chapter we consider the development plans for each of these regions separately.

## EAST PAKISTAN

### General description

2. Most of East Pakistan is a remarkably flat alluvial plain, built by the delta-forming activity of the principal rivers, the Ganges, the Brahmaputra and the Meghna. Some older alluvial soils consisting of red clay are found in patches in the districts of Dinajpur, Rajshahi, Mymensingh, and Tippera. The average slope, north to south, is roughly one foot in four miles. The entire province is laced with a dense network of water-courses. Where the lands are mostly flat and low, the enormous discharges, brought down by the rivers in the monsoons, cause regular floods.

3. Annual floods of varying intensities are a normal feature of about one-third of the cultivated area of the Province. This flooding helps to maintain the fertility of the land but sometimes, as happened in 1954 and again in 1955, assumes very destructive proportions.

4. The climate is tropical, with high temperatures and humidity. There are two seasons, the dry winter season from November to April, and the summer monsoon season from May to October. More than 98 per cent of the cultivated lands are dependent on the rainfall. Although the average yearly rainfall is about 76 inches, it is not evenly distributed, the highest being 226 inches at Lallakhal in the Sylhet district and the lowest 53 at Lajitpur in Rajshahi. Most of the rain (65 inches on the average) falls within a period of 4 to 5 months during the monsoon. The rest of the year is more or less dry.

5. The principal rivers in the region are perennial, though their discharges are low in winter. They are (*a*) the Ganges series including tributaries and spill channels, (*b*) the Brahmaputra series including the Teesta, and (*c*) the Meghna. The Ganges, traversing a length of 1,540 miles, and draining an average annual rainfall of 42 inches over a catchment area of 350,000 square miles, with a recorded maximum flood discharge of 2 million cusecs (at Sara), is mainly responsible in the building, raising and fertilizing of the delta. The Brahmaputra traverses a length of 1,800 miles, drains an average annual rainfall of 85 inches over a catchment area of 361,000 square miles, and had a recorded maximum flood discharge in 1955 of 1·8 million cusecs (at Gauhati). Though the Meghna does not drain such extensive tracts, its catchment comprises the Cherapunji and other extremely wet areas with some of the highest rainfall records in the world ; it has an estimated maximum flood discharge of about 15 to 20 per cent of that of the Ganges. The total annual volume of water in the rivers flowing into East Pakistan is estimated at 925 million acre-feet, of which, at present, practically nothing is utilised for irrigation, except by the natural process of overflowing the banks during the monsoons, and for a negligible amount of controlled flood irrigation. Table 1 gives the proposed utilisation of water in the Plan ;

## TABLE 1

*Proposed utilisation of principal rivers of East Pakistan*

| River system | Estimated average annual flow in million acre-ft. | Proposed Schemes | Proposed utilisation in million acre-ft. |
|---|---|---|---|
| 1. Ganges | 350 | Ganges-Kobadak, Ganges flushing & Tangon irrigation projects. | 17 |
| 2. Brahmaputra | 500 | Teesta barrage | 5 |
| 3. Meghna | 50 | ... | — |
| 4. Karnafuli | 16 | Karnafuli Project | 10 |

6. The whole of East Pakistan is covered by maps of general-purpose topographical survey. Excepting for the delta proper in the south, the major part of the Province is connected with contour survey bench marks. Some specific-purpose surveys have also been carried out in connection with the major projects, and others are under way. Soil survey is in its infancy, and has been completed only in one of the seventeen districts. There are some hydrometeorological stations, but not adequately equipped.

### Needs of the region

7. The culturable area of the region is about 26·4 million acres, of which only 20 is sown to crops in an average year, most of it being single-cropped; extensive areas of standing crops are seriously damaged when there are unusual floods. Increased production can be attained by

(*a*) Reducing flood damage to standing and stored crops to the practical minimum;
(*b*) Maintaining and extending the area of cropped lands;
(*c*) Increasing crop yields; and
(*d*) Double and even triple cropping.

8. When account is taken of prospective increase in productivity per acre through improved farming, more fertilisers, and better seeds and stock, there would be need to bring the equivalent of some 1·5 million acres under cultivation, merely to maintain existing living standards for the population of 1960.

9. The ultimate increase in the sown area is limited by the water supply available during the dry winter season. Its maximum availability in winter, for agricultural purposes, has been estimated roughly to be of the order of 50 million acre-feet, which, if properly utilised, would be able to irrigate about 13 million acres. Given adequate supplies of water, it should be possible to sow 25 million acres in the monsoons, and 80 per cent of this, or 20 million, in the winter. Although ample supplies would be available for the purpose in the monsoons, the requirement of water in the winter would be of the order of 75 million acre-feet, for which it would be obligatory to conserve some of the flood flows in large storage reservoirs. Although favourable locations for construction of reservoirs exists in the hill tracts, the opportunities for developing appreciable storage in East Pakistan are very limited. The extent of ground-water supplies has not yet been precisely determined. Such supplies as have been developed are used primarily to serve domestic purposes which require good quality rather than large quantities of water. The sub-soils of East Pakistan

are of such a nature that water yields from wells are low, but they are generally less contaminated than surface supplies. The yields being low, costs of development are high compared with those of surface supplies, and in general the use of ground water will be confined to domestic and commercial requirements.

10. Before 1947, what is now East Pakistan was the hinterland for the port of Calcutta, and the chief source of raw materials (mainly jute) for its industries and for export. With the attainment of independence, partition and the expansion of industry it became necessary to develop the baling of jute, and the manufacture of jute products, cotton textiles, and paper. In the field of agriculture, there are vast tracts of land in the districts of Kushtia, Jessure and Khulna which require lift irrigation during dry season. There is a large demand for power to be met ; we estimate that the power required will increase from 50,000 kw in 1955 to 120,000 kw in 1960.

**Long-range development of the region**

11. Historical evidence indicates that a system of water control and use was evolved in the Gangetic Delta, some 3,000 years ago. It consisted of broad shallow canals which carried the crest waters of the river floods, rich in fine silt, to the lands. They were so spaced that water could be distributed with reasonable facility to the rice fields, by means of cuts in the banks called *kunwas*, which were closed when the flood season had passed. During the monsoons, much of the land was covered with water. To avoid inundation, villages were located on the higher ground, generally made higher by earth obtained from the excavation of tanks, which had the double advantage of retaining the monsoon water for use during the dry season. These tanks are dotted by the thousands all over the country. The lands were bunded to control the amount and time of inundation, and, in the tidal areas, to prevent the invasion of salt sea water.

12. The system of water control and use was managed and maintained by the *zamindars* and the tenants, on a more or less forced co-operative basis, known as *pulbandi*. The long-drawn campaign of the Mahrattas and the Afghans, marking the decline of the Moghul Empire, brought about disorganisation and negligence in the proper maintenance of the system. None-the-less, *pulbandi* persisted up to the time of Independence, although in a less positive and effective manner. As a result of the partition of Bengal, a large number of *zamindars* migrated to India, and some measure of reform in land tenure was initiated, but no effective substitute for the *zamindari* system has, so far, emerged, in the form of local leadership, and Government have had to assume the responsibility for such limited maintenance as is possible in the circumstances.

13. The present schemes for flood regulation, drainage, flushing, and over-flow irrigation are outgrowths of the traditional indigenous system, and are more localised in nature, designed to solve immediate and particular local problems. Instances of such developments, as have been carried out from time to time, are the Gumti Embankment in Tippera district, the Ganges flood flushing sluices and embankment at Rajshahi, those along the Lower Kumar river in the Madaripur Bil Route, and artificial channels such as the Halifax cut and the Gaznavi cut. These developments are primarily for the purpose of flushing and improving the channels of the deteriorated rivers.

14. Many flood regulation and drainage projects, most of which are relatively small schemes, were initiated after Independence. These schemes are designed primarily to accelerate the drainage of low lying areas, in order to permit the cultivation of the lands affected, and, at the same time, to provide for the navigation of country boats, as well as to improve fishing facilities. These schemes may be considered as a programme of deferred maintenance of river channels and restoration of past developments.

15. Waterways were developed to connect the port of Calcutta with the trade centres of Bengal and the neighbouring provinces of Bihar and Assam, and water routes for inland shipping through the Sundarbans appear to have been in existence as early as 1770. Some canals, with tidal locks, were built early in the 19th century, and the route was gradually improved by the construction of a new canal in 1859, and locks in 1895 and 1910. To shorten the distance between Calcutta and the main Ganges channels, the Madaripur Bil route was opened early in the century. This is a short cut, about 20 miles in length, through a series of bils, connecting the Madhumati river with the Ganges through the Kumar and the Arial Khan rivers. The route practically monopolised river traffic between Calcutta and Upper Assam, in the early days, before the approach channels to the Ganges started deteriorating.

16. At present, there are about 2,700 miles of navigable channels, open during the monsoons, and about 1,800 miles open during the dry seasons. About 43 per cent of the total mileage can be used by small coastal vessels, barges and large river steamers, the rest being suitable only for medium-sized river steamers, launches and country boats. The channels were kept in good operating condition before the last war, during which they failed to receive adequate maintenance, resulting in progressive deterioration. Positive measures have been adopted recently to rectify this neglect.

17. Soon after the war, serious consideration was given to the development of long-range and comprehensive plans, in order to take full advantage of the beneficial effects of the river flows, and to reduce the destructive effects of floods to a practical minimum. Some investigations and surveys were initiated in north and central Bengal. The 1947 partition of Bengal disrupted this programme, as the areas concerned were located on both sides of the new border. However, the comprehensive approach to water resource development has taken root in East Pakistan, and the multi-purpose Karnafuli Project, the Teesta Barrage project and the Ganges-Kobadak Development, now under implementation, are examples in point, although developments in the tributary basins beyond the boundaries of Pakistan have not been taken into full account.

18. The Karnafuli project proposes to develop one of the very few water storage sites in East Pakistan. It is designed to produce 160,000 kw of hydro-electric power, improve navigation, and to reduce the destructive effects of the frequent floods, from which the Chittagong region has suffered in the past. A part of the power produced is planned to be used for pumping water from rivers for irrigation. The cost of schemes for such development is not included in the Karnafuli Project.

19. The Ganges-Kobadak Scheme proposes to pump the silt-laden waters of the Ganges into canals for irrigating lands which can be double and triple cropped. The deteriorated Kobadak river will be improved as a trunk drain, to be fed by a system of drainage channels, interlacing the irrigated area, thereby controlling the amount and the time of water remaining on the lands, and reducing somewhat the effects of destructive floods. The plans also include methods to resist the invasion of the land by the saline waters of the tides. The canal banks have been designed to accommodate local surface transport and the main canals and drains to provide for limited water transport. The entire Ganges-Kobadak Development will serve about 2 million acres of land on completion.

20. Before independence, most of the industries were concentrated on the banks of the Hooghly river near Calcutta, with hardly any industrial development in the rest of the Province. There were about fifteen small thermal electric power stations, privately owned and operated, which catered mostly for domestic loads, local small industries providing their own generating plant. The total installed capacity was about 22,000 kw in 1947, and acute shortage of power was felt immediately on partition. Schemes were, therefore, undertaken for the installation of additional thermal plants in the industrial centres of

Narayanganj, Chittagong and Khulna, and for the acquisition and improvement, by the Government, of the existing and largely depreciated plants at other places. The total installed capacity rose to 67,000 kw in 1955, of which 39,000 kw is estimated to be dependable capacity, available at all times.

21. Of the total land area of 34·9 million acres in East Pakistan, about 22 million, or 63 per cent, is cultivated. No detailed investigations of the extent to which this area could be increased through proper drainage have been made, but, on the evidence available, it may be said that an area of the order of 4 million acres is capable of reclamation over a long period of time through drainage. If that objective could be attained, the cultivated area would be increased to 74 per cent of the total area. The greatest possibility of development, however, exists in improving the agricultural practices, and in double and triple cropping of the presently cultivated area. Extensive and intensive studies must be made before the extent to which flood damage to crops and other valuable property can be reduced.

22. Comprehensive investigations of the land and water resources of the region are needed to determine the practical potential, and to draw up tentative plans and schedules for attaining full feasible development, and the maximum practical reduction of flood damage. Any comprehensive plan must take into account the following possibilities :

(*a*) Beneficial use of the water supplies to increase production;

(*b*) Anticipation and routing of flood flows through existing channels, which should be improved in a manner consistent with the natural regimen of the rivers, in order to reduce the destructive effects of floods;

(*c*) Devices to protect or re-locate valuable property threatened by floods;

(*d*) Improvement of conditions for water and land transport;

(*e*) Surface and ground water supply for domestic and municipal use; and

(*f*) Reduction of the incidence of water borne disease.

23. The deltaic rivers of East Pakistan form a single river system. Improvements on one river have their effects, beneficial or destructive, on the others. A small local drainage project, for instance, may improve crop production on the lands drained, but destroy crops in an adjacent area in which the drained water may accumulate. All effects of proposed improvements must be taken into full account, by testing the consequences of any development on the river system as a whole.

24. Such comprehensive investigations will require the collection and analysis of vast quantities of basic data, from areas lying outside the boundaries of East Pakistan as well as from within. These data are essential to the preparation of sound plans of water regulation and development. They will also serve the more immediate purpose of issuing flood warnings well in advance of high flows, thus allowing more time for the evacuation of threatened areas and the mobilisation of relief forces.

25. The extension of the general principles of the Ganges-Kobadak project to other areas, susceptible of such treatment, in an orderly and persistent manner, holds promise of comprehensive and conservative exploitation and control of the available water resources. Pending such an expansion, which is necessarily time-consuming, the programme of reclamation, through accelerating land drainage at the end of the monsoons, must be continued,

after taking into account possible adverse effects on other areas, at a rate at least to maintain the present acreage of the cultivated area, and to arrest further deterioration. Such drainage would prove to be most effective and of a permanent character, if local leadership could be generated, so that the construction of the drains, and, what is more important, their proper maintenance, could be accomplished through the co-operative effort of those directly benefited by them.

26. The first phase (now under execution) of the first unit of the Ganges-Kobadak project can serve effectively as a pilot plant, to test the practicability of the plans evolved, and to determine the methods by which the general principles, on which they are based, can be applied on a practical scale to future developments. In addition to such practical application, it will also be necessary to engage in more academic research on the natural processes of delta formation, and the problems which may be encountered in adjusting the plans of development to be consistent with those processes.

27. The sharp rate of increase in power loads, that has emerged since independence, may level off to some extent, when the arrears of demand have been met. However, it may reasonably be expected that the ready availability of power, particularly if the tariffs are fixed on a rational basis, will increase the power demand for industrial, commercial, domestic and agricultural purposes. Pumping water from low river flows, for irrigation during the dry season, as well as for drainage during and after the wet season, may form a significant component of the future power load.

28. The indigenous power resources of the region are very limited. Useable quantities of fuels in the form of oil, gas, and coal have not yet been found. The completion of the thermal plants, now under planning or construction, will serve the immediate loads, and the Karnafuli hydro-installation should take care of the increases in load growth up to 1965. The known potentials for further hydro-electric development are not very attractive. Unless local sources of fuel are found it would appear that the region will have to depend on imported fuels, or such new sources of energy as atomic power, in serving its long-range requirements.

The conditions of East Pakistan are particularly favourable for atomic power development. The hydro-electric potential is limited and the fuel for thermal power generation has to be imported. The possibilities should be explored as soon as possible. It will servie as an initial centre for training and experimentation, particularly in the economies of atomic power relative to other sources. The capital costs are likely to be higher but the fuel costs will undoubtedly be lower. Where local fuel is not available, as in East Pakistan, this may be the beginning of large scale development which may transform the whole power situation. We appreciate that it may not be possible to frame a scheme in time for inclusion in the Plan but it can be accommodated at a later stage against the reserve preserved for East Pakistan.

29. Any truly comprehensive plan for the development of the Ganges and the Brahmaputra river basins will tend to reduce destructive flood peaks, and to increase the low river flows. Such adjustments would improve the opportunities for development of the water resources of the region, and reduce the harmful consequences of the frequent floods. The Government should welcome any opportunity to participate in the international development of such plans, and any organisation created to undertake comprehensive investigations should be equipped to perform the staff work essential for such participation.

### Development since Independence

30. Developments undertaken since Independence comprise (*a*) multi-purpose, (*b*) flood regulation and drainage, and (*c*) power projects. No multi-purpose project was started before 1952. The first power project was initiated in 1950. Flood regulation and

drainage projects are types of development which have been undertaken traditionally in East Pakistan, and a number of them were initiated immediately after Independence. A list of all developments undertaken since Independence is given in table No. 2.

### TABLE 2

*Water and power resources development since independence*
*The Humid Region—East Pakistan*

| Name of scheme | Total estimated cost | Estimated expenditure up to March 1955 | Started in | Status | Results achieved by March 1955 | | | Power |
|---|---|---|---|---|---|---|---|---|
| | | | | | Area irrigated | Area reclaimed | Area drained | |
| | (Million rupees) | | | | (Thousand acres) | | | (K.W.) |
| I. MULTIPURPOSE DEVELOPMENT : | | | | | | | | |
| Karnafuli | 302·8 | 35·6 | 1952 | In progress | ... | ... | ... | ... |
| Teesta Barrage | 115·7 | 0·2 | 1953 | Do. | ... | ... | ... | ... |
| Ganges Kobadak | 28·0 | 5·4 | 1953 | Do. | ... | ... | ... | ... |
| Total | 446·5 | 41·2 | ... | ... | ... | ... | ... | ... |
| II. IRRIGATION : | | | | | | | | |
| 2 small schemes | 0·6 | 0·4 | 1953 | In progress | ... | ... | ... | ... |
| III. FLOOD REGULATION & DRAINAGE : | | | | | | | | |
| Dredgers | 17·9 | 12·6 | 1953 | Completed | ... | ... | ... | ... |
| 146 small schemes | 23·3 | 17·3 | 1947 | In progress | ... | ... | 423 | ... |
| Total | 41·2 | 29·9 | ... | ... | ... | ... | 423 | ... |
| IV. POWER | | | | | | | | |
| Sidderganj thermal | 39·5 | 9·1 | 1951 | In progress | ... | ... | ... | 5,100 |
| High Voltage distribution | 12·9 | 0·6 | 1951 | Do. | ... | ... | ... | ... |
| Chittagong thermal | 7·7 | 4·9 | 1953 | Do. | ... | ... | ... | 3,000 |
| Goalpara thermal | 7·8 | 4·6 | 1953 | Do. | ... | ... | ... | ... |
| Diesel pool | 1·6 | 1·5 | 1951 | Completed | ... | ... | ... | 3,000 |
| Chittagong distribution | 2·0 | 0·4 | 1954 | In progress | ... | ... | ... | ... |
| 4 Small power supply undertakings | 2·6 | 1·0 | 1950 | Do. | ... | ... | ... | 751 |
| Total | 74.1 | 22·1 | ... | ... | ... | ... | ... | 11,851 |
| Grand Total | 562.4 | 93·6 | ... | ... | ... | ... | 423 | 11,851 |

31. The estimated cost of developments under way by March 1955 totalled 562 million rupees, of which 94 million rupees (17 per cent) was the estimated expenditure by that date. They are designed to provide 242,000 kw of installed power capacity, and irrigation facilities to 2,732,000 acres, and to bring under cultivation an additional 1,120,000 acres of land, which was unproductive due to poor drainage conditions. By March 1955, about 12,000 kw of thermal power capacity had been installed and 423,000 acres of newly drained land brought under beneficial production.

32. The disparity between cost and accomplishment lies largely in the field of multi-purpose development, which accounts for nearly 79 per cent of the total estimated costs. In this type of development, large investments have to be made, and considerable time consumed in construction, before tangible results can accrue. These results, when they materialize, are of a higher order of magnitude and of a more permanent nature than quicker returns. Similar lag between costs and accomplishments also exist, but to a much lesser extent, in the other types of development.

33. The multi-purpose projects undertaken were the Karnafuli, the Teesta Barrage and the first phase of the first unit of the Ganges-Kobadak. The first two projects were delayed by changes in plans and changes in decisions. The total estimated cost of all the three projects is about 447 million rupees, of which about 41 million rupees were the estimated expenditure by March 1955. Accomplishments in terms of kilowatts installed or acres irrigated will be registered after the substantial completion of construction, some time in the later years of the Plan period.

34. In addition to the measured accomplishments, the multi-purpose developments will create other values difficult to measure quantitatively. The Karnafuli, in addition to producing hydel power, will provide means of reducing damages of frequent floods, and of regulating the flows of the Karnafuli river, thus improving navigational facilities from the Bay of Bengal to the Port of Chittagong and higher up the river. It will, in addition, provide easy access by boats in the large reservoir behind the dam, for developing the forest resources of the Chittagong Hill Tracts. It will also provide power for pumping water to irrigate lands during the dry season, and to drain water-logged areas during and immediately after the wet season. This will, however, require further investment in pumps and civil works, which should be planned well in advance of the availablity of power. The values enumerated will not accrue till after the main Karnafuli project has been completed. The Teesta and the Ganges-Kobadak will, in addition to irrigating large areas of land, provide means of improving both surface and water transport. Both will provide positive drainage as an incident to irrigation.

35. Flood regulation and drainage projects consist of a large number of relatively small schemes for the purpose of opening up congested water channels to facilitate drainage of lands, thereby providing a means of increasing agricultural production. In a number of cases, the improved channels will provide a means of water transport for country boats and improved fishing facilities. Control gates in protective embankments will provide a means of limited flood irrigation of the drained lands to the extent water is available in the river during periods of low rainfall. Because of the silting proclivities of deltaic rivers, such improvements will be subject to relatively high maintenance costs and periodic reconstruction. These developments may therefore be considered as a programme for the maintenance of river channels. Three of these projects are large, costing over 1 million rupees each. The cost of the remaining 143 averages about Rs. 140,000 each. Since dredgers are used for this programme, their cost (about 18 million rupees) is included as a separate item under this head. Of the total estimated cost of about 41 million rupees, about 30 million rupees (43 per cent) had been spent by March, 1955.

36. The power projects, consisting of thermal installations, were planned, to the extent practicable, for future inclusion into inter-connected and integrated power grids. The programme consists of installations of thermal generating capacity, construction of

distribution systems, and the acquisition and improvement of existing depreciated systems. The total estimated cost of these projects is about 74 million rupees of which about 22 million rupees were the estimated expenditure by March 1955. Considerable delays were experienced in deliveries, installation of equipment and construction of civil works. Out of a total of 71,900 kw of thermal capacity planned, only 11,851 kw (16 per cent) were installed by March 1955.

### The programme in the Plan period

37. The water and power programme for the Plan period includes the completion or continuation of such water and power resources development schemes as were under way at the beginning of the Plan period, as well as a number of new schemes, which have been added to meet the production goals envisaged. Their total estimated cost is 939 million rupees, of which 84 million rupees were the estimated expenditure up to March, 1955. The outlay proposed on specific schemes for the Plan period is 667 million rupees, or 71 per cent of the total, leaving 188 million rupees to be spent after 1960 to complete the projects in hand. The figures are given in Table 3. In addition 400 million rupees have been provided as a reserve for extra schemes, one of which is now being investigated, especially for flood control and for minor irrigation works.

### TABLE 3

*Estimated expenditure on water and power resources development in East Pakistan*, 1955—60

(Million rupees)

| Name of Scheme | Total Estimated cost | Estimated expenditure up to March 1955 | Expenditure estimate for | | | | | | Balance to complete |
|---|---|---|---|---|---|---|---|---|---|
| | | | 1955-56 | 1956-57 | 1957-58 | 1958-59 | 1959-60 | 1955—60 | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| I. GENERAL INVESTIGATION : | | | | | | | | | |
| Comprehensive investigation ... | 5·7 | ... | 0·4 | 0.6 | 1·1 | 1·7 | 1·9 | 5·7 | ... |
| Investigation of one flood regulation and drainage scheme. | 0·2 | ... | 0·1 | 0.1 | ... | ... | ... | 0·2 | ... |
| Total ... | 5·9 | ... | 0·5 | 0·7 | 1·1 | 1·7 | 1·9 | 5·9 | ... |
| II. MULTI-PURPOSE DEVELOPMENT: | | | | | | | | | |
| Karnafuli multi-purpose project ... | 302·8 | 35·6 | 23·3 | 57·0 | 57·0 | 55·1 | 45·7 | 238·1 | 29.1 |
| Ganges-Kobadak scheme (2nd Unit) | 165·5 | ... | ... | ... | ... | 5·8 | 17·5 | 23·3 | 142.2 |
| Teesta Barrage project ... ... | 115·7 | 0·2 | 0·9 | 19·8 | 24·1 | 24·4 | 29·4 | 98·6 | 16.9 |
| Ganges-Kobadak scheme (2nd phase of 1st Unit). | 39·5 | ... | ... | ... | 7·0 | 15·7 | 16·8 | 39·5 | ... |
| Ganges-Kobadak scheme (1st phase of 1st Unit and survey). | 28·0 | 5·3 | 7·6 | 7·1 | 5·4 | 2·6 | ... | 22·7 | ... |
| Development of the hydraulic research laboratory. | 2·1 | ... | ... | 0·4 | 0·6 | 0·7 | 0·4 | 2·1 | ... |
| Total ... | 653·6 | 41·1 | 31·8 | 84·3 | 94·1 | 104·3 | 109·8 | 424·3 | 188·2 |

## TABLE 3—*contd.*

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|
| **III. IRRIGATION :** | | | | | | | | | |
| Tangon irrigation project ... ... | 26·7 | ... | ... | 3·2 | 5·3 | 7·5 | 10·7 | 26·7 | ... |
| 6 small schemes ... ... ... | 3·6 | 0·4 | 0·2 | 0·3 | 0·9 | 1·0 | 0·8 | 3·2 | ... |
| Total ... | 30·3 | 0·4 | 0·2 | 3·5 | 6·2 | 8·5 | 11·5 | 29·9 | ... |
| **IV. FLOOD REGULATION AND DRAINAGE :** | | | | | | | | | |
| Ganges flushing-*cum*-irrigation-*cum*-drainage scheme. | 36·8 | ... | ... | 3·1 | 5·5 | 13·4 | 14·8 | 36·8 | ... |
| Reclamation of low land between Dacca Naraingunj road and Railway Line. | 19·8 | ... | ... | 5·3 | 4·7 | 4·6 | 5·2 | 19·8 | ... |
| Purchase of dredgers ... ... | 17·9 | 12·6 | 5·3 | ... | ... | ... | ... | 5·3 | ... |
| Comprehensive drainage scheme for prevention of flood in Feni Subdivision. | 4·1 | ... | ... | 1·2 | 2·1 | 0·8 | ... | 4·1 | ... |
| Reclamation of Areal Beel in Dacca | 3·0 | ... | ... | 1·6 | 1·1 | 0·3 | ... | 3·0 | ... |
| 63 small schemes ... ... | 14·2 | 8·9 | 2·7 | 0·6 | 2·0 | ... | ... | 5·3 | ... |
| 140 small schemes ... ... | 25·7 | ... | 3·8 | 7·6 | 8·9 | 3·4 | 2·0 | 25·7 | ... |
| Total ... | 121·5 | 21·5 | 11·8 | 19·4 | 24·3 | 22·5 | 22·0 | 100·0 | ... |
| **V. POWER :** | | | | | | | | | |
| Sidderganj thermal power projects ... | 39·5 | 9·1 | 8·5 | 16·1 | 5·8 | ... | ... | 30·4 | ... |
| Interconnection of power station ... | 18·1 | 0·5 | 1·4 | 7·9 | 8·3 | ... | ... | 17·6 | ... |
| High voltage distribution and substation. | 12·9 | 0·6 | 6·6 | 2·7 | 3·0 | ... | ... | 12·3 | ... |
| Hardinge Bridge Goalpara interconnection. | 12·2 | ... | ... | ... | 0·3 | 5·8 | 6·1 | 12·2 | ... |
| Chittagong thermal power project ... | 7.7 | 4·9 | 2·8 | ... | ... | ... | ... | 2·8 | ... |
| Goalpara thermal power project ... | 7·9 | 4·6 | 3·3 | ... | ... | ... | ... | 3·3 | ... |
| Chittagong electric supply expansion and improvement of l. t. distribution. | 2·0 | 0·4 | 1·6 | ... | ... | ... | ... | 1·6 | ... |
| Extension to Goalpara thermal power project. | 14·0 | ... | ... | 3·0 | 5·0 | 6·0 | ... | 14·0 | ... |
| 2 Transmission lines (Comilla-Chandpur and Kaliganj-Narsingdi). | 5·4 | ... | 0·1 | 0·9 | 1·4 | 1·7 | 1·3 | 5·4 | ... |
| Pool of small power plants with total capacity of 1,500 k.w. | 4·0 | ... | ... | ... | 1·0 | 2·0 | 1·0 | 4·0 | ... |
| 4 small power supply undertakings ... | 2·6 | 1·0 | 1·3 | 0·3 | ... | ... | ... | 1·6 | ... |
| 3 small power supply acquisitions ... | 1·4 | ... | 1·2 | 0·2 | ... | ... | ... | 1·4 | ... |
| Total ... | 127·7 | 21·1 | 26·8 | 31·1 | 24·8 | 15·5 | 8·4 | 106·6 | ... |
| Grand Total ... | 939·0 | 84·1 | 71·1 | 139·0 | 150·5 | 152·5 | 153·6 | 666·7 | 188·2 |

38. The specific schemes included in the Plan are designed ultimately to provide :

(*a*) Irrigation facilities to 5,443,000 acres of cultivated land, for double cropping or increasing production of single crops ;

(*b*) Drainage and flood regulation to 2,149,000 acres, which, at present, are unproductive due to drainage congestion or exposure to floods ;

(*c*) Installation of 258,000 kw of power generating and transmitting facilities ;

(*d*) Protection of 2·2 million acres from the saline waters of the tides ; and

(*e*) Considerable improvement in local transport facilities, both by land and water.

39. The prospective results by the end of Plan period are :

(*a*) 417,000 acres of land are expected to make productive use of irrigation facilities,

(*b*) 1,428,000 acres are estimated to be brought under production through accelerated drainage or flood protection, and

(*c*) 169,000 kw of generating capacity to be installed with the necessary transmission facilities.

The balance of the designed accomplishments will accrue after the Plan period. The ratios of expected results during the Plan period to the ultimate objectives are (*a*) 7·7 per cent (*b*) 66 per cent and (*c*) 65 per cent respectively. The greatest disparity between the ratios of expected results (7·7 per cent) and of expenditure (71 per cent) during the Plan period lies in the field of irrigation. This is due to the size and the complexity of the large schemes—the Ganges-Kobadak and the Teesta Barrage—in which the benefits will start accruing only towards the end of the comparatively long development periods. The figures relating to expected results in the Plan period are given in table 4.

### TABLE 4

*Expected results from water and power resources development projects in East Pakistan, 1955—60*

| Name of scheme | Period of execution | | Expected results during the Plan period | | | | |
|---|---|---|---|---|---|---|---|
| | Commencement | Completion | Area irrigated | | Area reclaimed | Area drained | Power |
| | | | (a) new | (b) old | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| | | | (Thousand acres) | | | | (k.w.) |
| I. GENERAL INVESTIGATION : | | | | | | | |
| Comprehensive investigation ... ... | 1956 | 1960 | ... | ... | ... | ... | ... |
| Investigation of one flood Regulation and drainage scheme. | 1956 | 1958 | ... | ... | ... | ... | ... |
| II. MULTI-PURPOSE DEVELOPMENT : | | | | | | | |
| Karnafuli multi-purpose project ... | 1952 | In progress | ... | ... | ... | ... | 80,000 |
| Ganges-Kobadak scheme ... ... | 1958 | Do. | ... | ... | ... | ... | ... |
| Teesta Barrage project ... ... | 1953 | Do. | ... | ... | ... | ... | ... |
| Ganges-Kobadak scheme (2nd phase of 1st Unit). | 1957 | 1960 | 40 | 50 | ... | ... | ... |
| Ganges-Kobadak scheme (1st phase of 1st Unit and Survey). | 1953 | 1958 | 100 | 150 | ... | ... | 10,000 |
| Development of hydraulic research laboratory. | 1956 | 1960 | ... | ... | ... | ... | ... |
| Total ... | | | 140 | 200 | ... | ... | 90,000 |

## TABLE 4—*contd.*

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|
| | | | (Thousand acres) | | | | (k.w.) |
| **III. IRRIGATION :** | | | | | | | |
| Tangon irrigation project | 1956 | 1960 | 25 | 25 | ... | ... | ... |
| 6 small schemes | 1954 | 1960 | ... | 27 | ... | ... | ... |
| Total | | | 25 | 52 | ... | ... | ... |
| **IV. FLOOD REGULATION AND DRAINAGE :** | | | | | | | |
| Ganges flushing-*cum*-irrigation-*cum*-drainage scheme. | 1956 | 1960 | ... | ... | ... | ... | ... |
| Reclamation of low land between Dacca—Narainganj road and railway line. | 1956 | 1960 | ... | ... | ... | ... | ... |
| Purchase of dredgers | 1953 | 1956 | ... | ... | ... | ... | ... |
| Comprehensive drainage scheme for prevention of flood in Feni sub-division. | 1956 | 1959 | ... | ... | ... | 22 | ... |
| Reclamation of Areal Beel in Dacca | 1956 | 1959 | ... | ... | ... | 71 | ... |
| 63 small schemes | 1947 | 1958 | ... | ... | ... | 688 | ... |
| 140 small schemes | 1955 | 1960 | ... | ... | ... | 647 | ... |
| Total | | | ... | ... | ... | 1,428 | ... |
| **V. POWER :** | | | | | | | |
| Sidderganj thermal power project | 1951 | 1958 | ... | ... | ... | ... | 42,900 |
| Interconnection of power station | 1954 | 1958 | ... | ... | ... | ... | ... |
| High voltage distribution & sub-station | 1951 | 1958 | ... | ... | ... | ... | ... |
| Hardinge Bridge Goalpara interconnection | 1957 | 1960 | ... | ... | ... | ... | ... |
| Chittagong thermal power project | 1953 | 1956 | ... | ... | ... | ... | 7,000 |
| Goalpara thermal power project | 1953 | 1956 | ... | ... | ... | ... | 10,000 |
| Chittagong electric supply expansion and improvement of l. t. distribution. | 1954 | 1956 | ... | ... | ... | ... | ... |
| Goalpara thermal power project | 1956 | 1959 | ... | ... | ... | ... | 16,640 |
| 2 Transmission lines (Comilla—Chandpur and Kaligunj—Narsingdi). | 1955 | 1960 | ... | ... | ... | ... | ... |
| Pool of small power Plant with total capacity of 1,500 k.w. | 1957 | 1960 | ... | ... | ... | ... | 1,500 |
| 4 small power supply undertakings | 1950 | 1957 | ... | ... | ... | ... | 777 |
| 3 small power supply acquisitions | 1955 | 1957 | ... | ... | ... | ... | 654 |
| Total | | | ... | ... | ... | ... | 79,471 |
| Grand Total | | | 165 | 252 | ... | 1,428 | 169,471 |

(*a*) New irrigation.
(*b*) Improvement of irrigation facilities.

40. For the optimum development of the water and power resources of the region, it is essential that a long-range comprehensive and co-ordinated development plan should be prepared and executed. In order not to lose sight of this objective, and, in fact, to give it the importance it deserves in the economy of the country, a separate classification head, "General Investigation", has been introduced into the programme, and an amount of 5·7 million rupees provided, for developing an organisation to undertake the necessary investigations, and to prepare the comprehensive plan envisaged, so that all future programmes fit into it in their proper places and at their proper times. The function of the organisation would have to be a continuing one, involving expenses, also of a continuing nature, after the Plan period.

41. Under 'Multi-purpose Development', the Karnafuli, the Teesta Barrage and the first phase of the first unit of the Ganges-Kobadak schemes were already under way at the start of the Plan period. The second phase of the first unit, and the second unit, of the Ganges-Kobadak scheme are proposed to be started in the latter part of the Plan period. The secodd unit is designed ultimately to provide irrigation facilities to 2 million acres of land, and protect 2·2 million acres from the invasion of sea water, by means of a system of tidal embankments. In addition, the whole scheme will provide a means of improving both land-borne and water-borne local transport.

42. Of the estimated total cost of 654 million rupees under this head, 424 million rupees or 65 per cent, is proposed for expenditure during the Plan period. A sum of 188 million rupees, or 29 per cent will be required to complete the developments after the Plan period. It is expected that the projects will provide irrigation facilities to 340,000 acres, and 90,000 kw of power capacity, by the end of the Plan period.

43. Two of the small schemes mentioned under 'Irrigation' have already been started, and are expected to be completed in the first year of the Plan period. The Tangon scheme is scheduled to start in the second year, and to be completed by the end of the fifth year. It will provide irrigation facilities to the high and dry lands, about 307,000 acres in area, in the north-western part of the Province, by means of a series of diversion barrages across the Karotoya and Tangon rivers. Practically the whole of the estimated cost of 30 million rupees under this head is scheduled for expenditure during the Plan period, providing irrigation facilities to about 77,000 acres in 1960.

44. Under the head "Flood Regulation and Drainage", all the large schemes proposed are new developments. The only exception is a provision for the final payment on account of the purchase of dredgers, which will be made in the first year. The Ganges flushing, irrigation and drainage scheme aims at improving the sanitary conditions and the agricultural production of deteriorated, water-logged, and swampy areas of the Faridpur district, which have been deprived of the natural delta-building functions of the Ganges river. An area of about 563,000 acres will be benefited by the completion of the scheme. The channels improved will constitute 34 per cent of the total length of the natural rivers and khals in the commanded area. These benefits will, however, accrue after the Plan period.

45. Of the small schemes, 63 (costing 14 million rupees) are already under way, and 140 (costing 26 million rupees) are proposed to be started soon. Their average cost is of the order of Rs. 200,000 and all of them are likely to be completed during the Plan period. The total estimated cost of the Flood Regulation and Drainage schemes is 122 million rupees of which about 100 million rupees, or 82 per cent, is scheduled for expenditure during the Plan period. It is expected that about 1·4 million acres will be brought under production during the Plan period.

46. Controlled diversion of peak flows through improved channels of dead and dying rivers, and other protective devices, may be required to prevent loss of life, and to reduce damage to property from recurring major floods in East Pakistan. Investigations are now in progress to plan methods and works for reducing flood hazards; measures found feasible as part of a unified development programme for water resources could be undertaken during the Plan period in addition to those already included in the Plan by using the reserves provided for such extra schemes.

47. All but five of the schemes included under the head 'Power', were under way before March, 1955, and all are likely to be completed long before the end of the Plan period. Only four will remain to be completed after March, 1958. Of the total estimated cost of 128 million rupees, about 107 million rupees, or 84 per cent, is scheduled for expenditure during the Plan period. About 79,000 kw of generating capacity (additional to 90,000 kw in multi-purpose schemes) will have been installed during the Plan period, and a corresponding network of transmission and distribution lines and other facilities provided for the disposal of this as well as of the energy made available by multi-purpose development. The present generation of 0·8 unit *per capita* will rise to 8 units by 1960.

48. The expected results during the Plan period consist of irrigation facilities to 417,000 acres of already cultivated land, to permit double or triple cropping, and to 1,428,000 acres of land, drained to permit effective cultivation. This may be taken as very roughly equivalent to bringing something over 1·5 million acres of land into cultivation. It is barely enough to maintain existing living standards for the greater population of 1960. To increase standards would require a larger programme than the available technical resources would permit. In the field of power, a generating capacity of 169,000 kw will have been installed, for which adequate transmission and distribution facilities will also have been provided. This will give a firm dependable capacity of 140,000 kw against an estimated need of 120,000 kw in 1960. The apparent excess of capacity over estimated requirements will be quickly overtaken by the growth of demand after 1960.

49. The programme for the Humid Region is most ambitious. The proposed outlay in the first year of the Plan is greater than the total expenditure incurred on water and power resources development, between 1947 and 1955, and the annual rate of expenditure is expected to double between 1955 and 1960—an average rate of programme acceleration of 28 per cent per annum. Only effective and immediate organisation of work on the Karnafuli and the other worthwhile schemes can implement this ambitious schedule

## THE INDUS BASIN

### General description

50. The Indus system of rivers comprises the main Indus and its major tributaries, the Kabul and the Kurram on the right bank, and the Jhelum, the Chenab, the Ravi, the Beas and the Sutlej on the left. The first two join the main Indus soon after it debouches from the mountains, and the others lower down in the plains. All rise in the Himalayas or its western extensions, and are snow-fed. The whole of the Beas and the head reaches of the Ravi and the Sutlej are in India, while those of the Chenab and the Jhelum lie mostly in the Kashmir State. The entire Basin covers an area of about 348,000 square miles, out of which 204,000 lies in Pakistan. In addition there are about 29,000 square miles which lie outside the Indus Basin but are dependent on the Indus river system for their water supply. The plains of the Basin consist of alluvial deposits, thousands of feet thick, being mostly silt and sand of low permeability and some clay, with no known gravel layers of any considerable extent. The precipitation in the head-reaches of most of the streams is in the form of snow. Lower down, the rainfall averages from 30 to 40 inches along the

sub-montane tract to less than 5 inches in the west. The plains may therefore be classified as semi-arid to arid. Almost all of the basin in Pakistan receives less than 15 inches of rainfall, 60 per cent less than 10 inches and 16 per cent less than 5 inches. The rainfall is not distributed evenly throughout the year, but is concentrated in the monsoons (June to September). Local rainfall shows great variation from year to year in respect of quantity, incidence and duration. The maximum deviation that may be expected from the annual mean in any one year is comparatively large.

**Natural resources of the Basin**

51. The gross area of the Indus Basin in Pakistan is 131 million acres, of which 75 million are culturable, but the net area sown to crops is only 27.5, million, of which 90 per cent produces one crop per annum. The net area irrigated in an average year is 21 million acres, which represents 28 per cent of the culturable and 76 per cent of the cropped area.

52. Except for the irrigated lands, which are relatively free from erosion, the whole region suffers from wind or water erosion in varying degrees. In the Punjab alone, there are 1·6 million acres that are severely eroded, and 2·8 million acres which have suffered from the invasion of shifting sands. There are over 6 million acres, which are infested with excessive salts or suffer from high alkalinity.

53. The rivers of the Basin are subject to extreme variations of flow, the summer maximum discharge being about 100 times the winter minimum. The run-off is characterised by the absence of any pronounced duration of mean flow, but shows a marked periodicity. There is generally a period of low water flow from the middle of September to the middle of March, mainly derived by seepage from the stored up ground-water. The main rise usually begins by the middle of March, with the melting of the Himalayan snows, reaching a maximum during July or August, as the result of the monsoon rainfall and falling off in September. This does not fit in very well with the agricultural calendar. The dry season discharge in the main river channels is too low, and supplies during the *rabi* and the critical periods of the *kharif* are always short. On the other hand, for 2 to 2½ months, the rivers carry large surpluses over and above the agricultural requirements of the crop areas that can be supported in periods of low flow, and considerable quantities escape from the land without being put to beneficial use.

54. The utilisation of river flow is further complicated by the fact that the fluctuations in the stream flow of all rivers in the region more or less follow the same hydrographic pattern. Whenever the main Indus, the Jhelum and the Chenab are in deficient supply, the Ravi, the Beas and the Sutlej are also correspondingly short. Hence both the shortages and the floods are accentuated. The natural surface waters are of excellent quality, and the quantity of silt carried is very large. Unfortunately, no systematic records of their silt content are available. Based on a 25-year record (1921-22 to 1945-46), the total annual inflow, measured at the six rim stations on the Indus and its tributaries, averages 168 million acre-feet, varying widely from year to year, the annual maximum being 189 and the minimum 139. The daily discharge variations are very much greater.

55. Not enough is known about the ground-water resources to give a quantitative idea of their potentialities or limitations for development. The formations range widely in permeability even within short distances.

56. Complete general-purpose topographical maps do not exist for the upper hilly reaches of the river catchments. Those that are available lack important details, such as contours, and precise levels. Nor has the geology of the area been studied in any detail. There are hardly any meteorological or hydrological data, and no records exist to show the relation between the rainfall and the run-off. No snow surveys have been carried out, and the contribution of the snow to the surface run-off is not known. In the plains, on the other hand, general-purpose topographical maps are available for the whole of the

area which is irrigated, or in which irrigation projects are under construction. Fairly complete meteorological records exist at a number of stations, but it is necessary to establish more stations for purposes of comprehensive development. A complete network of gauge and discharge observation sites exists on the main Indus and the tributaries. Adequate information is, however, not available on the variation of evapo-transpiration in space and time, nor does any adequate quantitative analysis of silt loads and their origin exist. Ground-water levels have been observed for a long time past, twice annually, and systematic records of these are available for the former Punjab and the Sukkur Barrage area.

57. Various Settlement Reports and District Gazetteers classify areas and soils by visual surface tests. Local surveys were carried out for assessing the capabilities of particular areas to justify certain irrigation projects. Special purpose soil surveys have been conducted in the former Punjab and the Sukkur Barrage area for studying the extent of deterioration due to salts, but no scientific and comprehensive soil surveys have yet been carried out. Recently, detailed soil surveys have been conducted in connection with some of the reclamation projects. A reconnaissance soil survey for a part of the area has just been completed from the aerial photographs prepared under the Colombo Plan.

## Needs of the Region

58. Taking account of prospective increases in productivity per acre, we consider that an additional 2·5 to 3 million acres would be needed, merely to maintain existing standards of food and clothing for the increased population of the region by 1960. There is sufficient irrigable land, under the command of the existing canals and those under construction, to provide this extra acreage. Water requirements vary with individual crops, but, assuming water applications, amounting to an average depth of 3 feet per acre per crop, the additional requirement of water for irrigating the new lands, or double cropping the lands now producing one crop per year, would be 7·5 to 9 million acre-feet.

59. Salinity and the rising water table have already affected over 6 million acres of land, to which over 50,000 acres are being added annually. The proper treatment of the area requires effective drainage, additional supplies for leaching down the accumulated salts, reduction in the present water duty, intensified agriculture, and a suitable cropping pattern. Reclamation of the deteriorated lands, on a scientific basis, would thus have to wait for the completion of the Mangla storage dam and the installation of tube-wells. However, for the present, it is essential at least to offset the progressive deterioration by reclaiming 50,000 acres every year. Assuming (a) the period for reclamation of any piece of land as three years, (b) a water diversion allowance of one cusec per 45 acres of the area to be reclaimed, and (c) a field efficiency of 80 per cent about 1·3 million acre-feet per year would represent the present requirements for reclamation in addition to the normal irrigation supplies. This process must be continued to maintain the *status quo* till additional supplies become available for reclamation of the 6 million acres of land affected.

60. The region is highly deficient in forest, which are unable to meet even a fraction of the minimum requirements for firewood and timber for internal consumption. In economic competition, however, with food, for regulated water supplies, forests would naturally rate low.

61. Water requirements for domestic, commercial and industrial use have a relationship to population, and the intensification of commerce and industry. In this country, it may be assumed that such requirements would be of the order of about 0·2 million acre-feet per million of the population, in the early years of the Plan period, but are bound to increase with the progress of time. Such additional requirements may be estimated

at about 0·5 million acre-feet by 1960. Hydro-electric power stations do not consume water, and are so planned that they do not interfere with supplies for other purposes. Thermal plants require water for cooling, but return most of it to the river. The water requirements for thermal plants may be considered to have been included in the estimates of water requirements for domestic, commercial, and industrial use. The combined water requirements for purposes of navigation and control of sea water intrusion have been estimated at 17·2 million acre-feet, below the Ghulam Mohammad Barrage at Kotri.

62. Depletions of the 'historical' supplies in the three eastern tributaries, which rise in India, may create water demands of a very high magnitude and variety, which it is not possible to specify in this chapter, as it is the subject of joint study by Pakistani and Indian engineers and representatives of the World Bank.

63. The minimum additional annual water requirement by 1960 (exclusive of navigation and salinity control, and of what may be necessary for the replacement of supplies now received from the three eastern-most tributaries) may be estimated as between 9·3 and 10·8 million acre-feet.

64. Before 1947, the potential demand for electrical energy in the area as a whole was not readily apparent, except for domestic and commercial purposes in the larger municipalities, where public companies or corporations were licensed to generate and supply electricity. To serve the requirements of most of the industries which had been established, generating capacities were installed as a part of the individual industrial plant. Immediately on the attainment of independence, there was a spurt of industrial and other activity, resulting in larger and larger demands for power for all purposes. Recognition of the necessity for reclamation of deteriorated lands, and urgent needs for additional water supplies, led to plans for the exploitation of ground-water resources through the installation of electrically-driven pumps for tube-wells. In 1950 a team of consulting engineers carried out a load survey on behalf of the Government and estimated the power requirements of the Indus basin to be 157,000 kw in 1954 rising to 367,000 kw in 1964. In 1952, the Central Engineering Authority reviewed these forecasts in the light of the accelerated pace of over-all development, especially the more rapid extension of industry and ground-water pumping. The Authority's estimated requiremet was 218,000 kw in 1954 rising up-to 417,000 kw in 1964 - nearly doubling in the decade. Because of the changed pattern of actual and planned industrial and agricultural development since the completion of the previous estimates, the Government arranged in 1954 for a new assessment of the power requirements of West Pakistan. Because of delays in planned installations, these new estimates showed a rise from 127,000 kw in 1954 to 422,000 kw in 1964.

65. All these estimates needed to be revised to take account of the increased demands for power from the developments now proposed in the Plan; more spindles and looms in the textile industry, the completion of cement plants, new fertiliser factories, metallurgical installations, and sugar mills, and the installation of tubewells for irrigation and reclamation, as well as consequent increases in the domestic and commercial and industtrial loads. Our studies have indicated that power requirements may rise from about 240,000 kw in 1956 to 405,000 kw by 1960.

**Long-range deevlopment.**

66. The most spectacular development in the control and utilisation of water resources in this country has taken place in the area drained by the Indus and its tributaries. An ingenious, intricate and semi-automatic system of water control has been evolved over a long period of recorded and unrecorded history. It has its genesis in the intensive cultivation of land Supplied with water by the annual floods. This so-called *sailaba* irrigation still continues to be practised on a substantial scale.

67. The next step was the construction of inundation canals, which drew water during the summer, when the rivers rose above the levels of their inlets, and irrigated lands which otherwise would not have received water by natural flooding. Like *sailaba* inundation canals cannot exploit the minimum river flows.

68. Canals, both perennial and non-perennial, which came next on the scene, are supplied by weirs across the rivers, built at strategic points, to capture the minimum flows, the former all the year round, the latter only during the summer, when the rivers carry higher discharges. A large number of the old inundation canal systems, which naturally suffered from fluctuating river levels, were converted to perennial or non-perennial canals receiving controlled supplies. The first weir to be installed was at Madhopur on the Ravi, in 1859, to feed the Upper Bari Doab canal. There is no evidence that a plan of the existing intricate system was conceived at the time. Presumabley the first and some of the subsequent irrigation works on the eastern tributaries were inspired by economic and political pressures for increasing agricultural production. In spite of the lack of a comprehensive plan, the installations developed into a closely knit and integrated system of works. Those on the eastern tributaries of the Indus now command about 19·5 million acres of culturable land in this country.

69. The ambitious barrage systems on the main stem of the Indus, which came late in the day, were inspired by (a) the fear that extensive development on the eastern tributaries would reduce flows in the main river, beolw its confluence with them, to a degree which would render the old inundation canals inoperative, and (b) the necessity to increase agricultural production in order to colonise new lands to feed a rapidly expanding population. The first was the major inspiration of the Sukkur, the Ghulam Mohammad and the Gudu barrage systems, and the second of the Jinnah Barrage at Kalabagh. These systems, designed to exploit the minimum flows of the Indus, constitute great engineering feats, which rival the intricate systems built on the eastern tributaries. Of the 17·7 million acres commanded by them, about 7 million had not been irrigated previously.

70. The major western tributaries of the Indus are the Kabul and the Kurram. The developments, existing or under a way, on these rivers are:

(*a*) The Kabul river canals ;
(*b*) The Upper and the Lower Swat Canals ;
(*c*) The Bannu Civil Canals ;
(*d*) The Warsak reservoir and canals, and
(*e*) The Kurram Garhi development.

These are designed to command a total 783,000 acres of culturable land.

71. The entire system of works, existing and under way, will ultimately command about 38 million acres of culturable land in the whole country. Its primary function is to supply water for irrigation, as and when it becomes available in the rivers. Any function it may or can serve in regulating the rivers supplies, for purposes other than irrigation, is minor and incidental. In fact, there is an almost complete lack of information necessary to serve other purposes, with the exception of hydro-generation, such as flood control, navigation, reduction of stream pollution and the improvement of fisheries.

72. At the time of independence, the total power installations of this region, owned by public utility agencies, had a capacity of 68,000 kw of which thermal generation accounted for 57,000 kw. By March 1955, the installed hydro-capacity had arisen to about 63,000 kw and thermal capacity to 98,000, kw a total of 161,000 kw. The percentage of hydro-generation

total capacity had thus risen from 15 per cent in 1947 to 40 per cent in 1955. Most of the installations have gradually been inter-connected by transmission systems in the north. The discovery and development of the Sui Gas field in Baluchistan holds promise of partially supplying the increased requirements of thermal generation, and reducing the demand for imported fuels.

73. There is a wide range between the maximum and minimum discharges of the Indus Basin River System, which raises difficult problems in the regulation of stream flows. For instance, the Indus river has a peak discharge of over 900,000 cusecs (at Kalabagh), while its minimum discharge is of the order of 17,000 cusecs. Some measure of protection from damage by moderate floods is provided by a system of dikes as a means of river control. The main Indus is embanked almost continuously from below Kashmore to near Nawabshah, covering a length of about 240 miles. The left bank is further diked almost down to the sea. There have, however, been a number of damaging floods in quick succession since independence. Apparently these floods have been increasing in intensity and frequency in recent years. The increases may be caused by the recurrence of a long-term meteorological cycle. Progressive denudation in the hilly catchments may have aggravated these conditions, but it cannot be said to what degree. This was intensified during the last war, when forest areas were stripped of trees for the procurement of timber, and is still continuing because of the increasing pressure on the land and need for local fuel, thus accentuating the natural process of soil erosion both in the hills and along the river banks. Apparently the silt charges of the rivers have also increased, to what extent has not yet been determined. However, the beds of the rivers are rising, so that, in some places, they are now flowing on ridges higher than the adjoining lands, and so causing more flood damage. The evil is further accentuated by such artificial barriers as the canal headworks, railway embankments and road bridges, all of which have been found to offer inadequate waterway to the floods. They naturally cause serious flooding upstream, and result in the intensification of the onrush downstream, in the event of any one of them collapsing. The Punjab Flood Commission of 1951 thoroughly investigated the causes of the 1950 floods, which were at the time considered to be of an unprecedented magnitude, and came to the conclusion that no really effective measures could be taken to control floods in the Jhelum, Chenab and Ravi rivers, except by constructing flood detention reservoirs in their hilly catchments. The floods of 1955 proved to be even worse than those of 1950, causing much greater damage.

74. Natural drainage is not well defined in the area commanded by the canal system. The deficiency is due to the general topography and the relative low rates of precipitation, with the result that nature was not compelled to carve out a drainage system to dispose of excessive quantities of water, which did not exist before the advent of the intricate canal system. The introduction, later on, of large volumes of water for irrigation rendered the natural system of drainage completely inadequate to accommodate the excess water and induce free return flows to the streams. On the other hand, the natural drainage system has not been supplemented by artificial drains, except in a very minor degree. The necessity of lifting drainage water by pumping involves serious technical problems and high costs. Hence excess water has been trapped in the lands, inducing high ground water tables.

75. The lack of effective drainage has led to the twin evils of (a) water-logging and (b) an increasing and destructive concentration of salts in the root zones of the plants growing in the soils. The high degree of river water control, attained at considerable cost, is thus seriously impaired. These conditions reduce returns on capital investment made in the system, and the productive capacity of the lands is greatly impaired. They further create social and economic problems, because the cultivators who developed the lands have either to move to new locations, or be satisfied with a sharp reduction in their crop production.

76. Attempts are being made to reclaim water-logged and saline lands by tube-well pumping, in order to draw down the water table, and use the pumped water for reclamation and improvement of irrigation. Such installations are concentrated in selected areas, where the results of properly integrated measures could be observed carefully and appraised in rational manner. Greater dependence is, however, placed on tube-well pumping than on a balanced plan of action. The high cost and restricted supply of electric energy for running the pumps have also complicated the experiment.

77. The average crop yields per acre in the area served by the Indus andits tributaries are about 30 to 40 per cent of those attained in other similar areas in Japan and Egypt. Yields depend on good management of the land, and of the water on the farm. Good management requires, among other things, adequate water supplies at critical times of crop growth. The average depth of water used for irrigation in the Indus basin is about 2 feet for a single crop only, whereas, for intensive diversified cropping and optimum crop production, about 6 to 7 feet is necessary. The low efficiency is also due to the non-coincidence in time of water supply and demand. The present canals system, as it exists, is incapable of regulating the seasonal and annual fluctuations in the river flow. Efficiencies in providing for optimum utilisation of controlled water supplies, for purposes other than agriculture, are also quite low. We have made no attempt to appraise these efficiencies in quantitative terms. Some of these potential uses, such as power, have been recognised; others have not, because of the pressure of urgent need for service to the main purpose of irrigation.

78. Efficiencies in the maintenance of control of the water supplies may be considered by appraising the water lost in the system from the point of diversion to the point of delivery on the lands. The necessary data for such appraisal are not available. Even supposing such efficiencies are not below efficiencies in other parts of the world, water losses are much more significant in the Indus region, because, owing to the lack of adequate drainage, they cause serious damage. When water is so desperately short in supply in relation to present and potential requirements, and where it is the key to, and the measure of, successful economic development, the practical control of the water potential must be positively established, diligently watched and efficiently maintained.

79. Although good-quality lands abound in the region, water supply, however substantial in quantity, is the limiting factor in land development. An estimate of the ultimate water requirement for agricultural use alone, based on the total availability of culturable lands, ranged as high as 460 million acre-feet per annum, which is far in excess of the gross annual supplies of the Indus river system. Effective control in time and quantity, efficient use, and diligent conservation of whatever supply is available are therefore of prime importance to the nation.

80. With the completion of the barrages on the Indus river system, now under construction, its dependable surface flows will be diverted on to the lands to the maximum possible extent. Great progress has been made, in the recent past, in the utilisation of its supplies, by converting the inundation into weir-controlled canals, and so ensuring better supply for longer periods. When the existing projects, and those under construction, have fully been developed, the limit of the area that can be brought under cultivation through such irrigation works, will have been reached. There will remain, however, the constant danger of scarcity of water at critical periods, and the future development of reclamation and irrigation on a large scale will depend on the storage of high river flows during the monsoons, which now run to waste in the sea. Any appraisal of the quantity of waste water, which could thus be salvaged, would remain purely speculative, until comprehensive field investigations and hydrological studies have produced depandable estimates.

81. There are limitations, however, to the possibilities of storage. The complete regulation of the mean annual flow of the Indus river system will require more than one hundred million acre-feet of reservoir capacity, whereas the presently known reservoir sites offer capacities of about 25 million. The topographical and geological characteristics of the sites limit the height to which dams can be built. A further limit to the useful capacity of reservoirs is imposed by the high silt-content of the river flows. Moreover, the construction of large storage reservoirs would involve, of necessity, high initial outlay of capital, compared with the existing works, such as the barrages, for deflecting flow supplies. It has been estimated that about 40 million acre-feet, over and above the existing uses, could be harnessed for useful purposes in the Indus basin, but it cannot be said with certainty what portion of it would be available to Pakistan, as the whole matter is the subject of a joint study by Pakistani and Indian engineers and representatives of the World Bank.

82. After these storage reservoirs have been built, only a limited volume of flood waters will flow down to the sea. The variation from year to year would, however, be very great. Its utilisation, at least in part, for beneficial purposes, should be the objective of a well-considered plan of future water resource development. We recommend that the feasibility of the conservation of such supplies, as are likely to go to waste otherwise, should be examined carefully. The following means offer possibilities of their utilisation:

(*a*) Artificial recharge of the ground water reservoir; and

(*b*) Creation of storage basins in desert areas.

Small projects, for utilising the waters of numerous intermittent hilly streams, offer good possibilities, and should not be neglected in favour of the more spectacular larger schemes. Such small projects should be developed. Several of such schemes have recently been projected.

83. Flood control measures, in the past, have been confined to embankments and temporary expedients, which have proved to be of little avail. Embankments, to be effective, must be backed by reservoir control. The possibility of utilising reservoirs, for effective flood control, would, however, require enormous storage capacities for which the known reservoir sites are inadequate, although they would undoubtedly exercise a moderating influence. Reservoirs will also have to be supplemented by large-scale conservation measures in the head-waters. Watershed management through afforestation, improved agricultural practices, and a rigid application of forest policy, should be regarded as an integral part of a comprehensive flood-control plan. These will need to be supplemented by numerous smaller projects in the lower reaches of Indus and its tributaries. In undertaking any developments in the flood plains, due precaution should be taken against the possibility of accentuating flood levels. The immediate remedy lies in carrying out moderate channel improvements, and river training works, in the gradual removal of constrictions in the streams, and in providing suitable openings in embankments. Such measures can at best reduce the extent of the damage which now occurs. It can further be reduced if timely flood warnings are broadcast. A flood forecasting and warning system must, therefore, be perfected in the immediate future.

84. There is evidence of sizeable ground-water supplies, but their effective utilisation presents a much more complex problem than that of surface supplies. Their successful development involves determining their precise extent and quality, their availability at different places, and the relation between rate at which water supplies are depleted and the rate at which they are restored. The greatest limitation will probably be found to be in the quality of ground water, and the question of mixing it with canal water supplies before use will need to be investigated. The ruling electrical tariffs are unduly high, and the

raising of ground water for purposes of irrigation cannot be justified on the prevailing crop prices. For any large scale and economical development of ground-water resources, therefore, the problem of obtaining an abundant supply of cheap energy will have to be tackled.

85. The amount of additional water that could feasibly be developed in the Indus Basin for use in this country cannot be forecast with any degree of precision. Whatever these additional supplies may prove to be, we are faced with the problem, of their optimum utilisation. The choice lies between the extension of irrigation to arid lands, and the intensification of production on lands commanded by the existing irrigation system. The final decision would probably be somewhere between these two extremes. Economic and social considerations point towards the latter alternative, but the pros and cons will have to be examined very carefully in the light of conditions that prevail in the different parts of the region. Agronomic and engineering sutudies are another pre-requisite for determining the most economic use of meagre water resources. The maximum production per unit vloume of water could be achieved by the most judicious combination of cro ps with varying water requirements and their proper rotation. The value of crop production could be increased substantially if water in sufficient quantity and at the proper time were made available.

86. More important than the complete exploitation of the water resources of the basin is their efficient use. At present, only about 60 per cent of the water diverted at the canal headworks reaches the field, the rest being lost in evaporation and percolation. One of the major problems to be solved by the irrigation engineer is how to reduce these losses to the bare minimum, to enable intensification of agriculture on presently irrigated lands, or expansion of cultivation in those commanded but not irrigated by the existing canals. For this, it is necessary to devise a systematic programme, consistent with economy, to improve those sections of the irrigation channels, in which the losses are the highest. In addition, it is necessary to obviate losses beyond the canal outlet. In the past, irrigation management has not received the consideration it deserves. An extensive study of the various methods of irrigation must be made, and means devised, to reduce the water los ses to a minimum during the application of water to the fields.

87. The best possibilities for low-cost hydro-electric development are necessarily to be found in the upper reaches of the Indus and its northern tributaries, where power heads are high, quantities of water adequate, and opportunities for water regulation and storage ample. Their magnitude may run into several million kilowatts of installed capacity. Any system of reservoirs found feasible should be planned to serve all useful purposes. The eventual availablity of natural gas, along a pipe line from Sui to Lahore, for service to thermal electric plants, would supplement and complement the hydro-electric potential. The value of an integrated energy production and transmission system would be greater than the sum of the values of production from separate sources.

88. To sum up, any long-range programme for developing the water-resource potential of the region should take into account the following factors in the order listed :

(a) Effective maintenance and enhancement of the values of existing development, through the reclamation of deteriorated lands and adjustments in the existing system of works ;

(b) Orderly, efficient, and persistent completion of water and power development works under way ;

(c) Increase, in quantity and value, of productivity of lands now irrigated, through intensive use of land and water supplies ;

(d) Improvement of control of developed water supply, and exploitation of the remaining water resource potential through planning, constructing and operating an integrated system of storage reservoirs in the upper reaches of the Indus and its northern tributaries, for service to all useful purposes, each in the order of established priority ;

(e) Extension of water service to unirrigated but productive lands under command of the existing control system, to the extent that supplies can be made available in excess to requirements for intensive production of the irrigated lands; and

(f) Extension of the control system to command additional lands of a highly productive character, if and when controlled water supplies are made available beyond the requirements for intensive production on lands commanded by the existing control system.

**Development since independence**

89. The developments undertaken in the Indus Basin since Independence comprise :

(a) Multi-purpose projects;

(b) The inter-linking of the Chenab, the Ravi and the Sutlej rivers to increase the flexibility of the irrigation system and the supplies available for the Sutlej Valley Canals;

(c) Projects to arrest the progressive deterioration of soils due to salinity and the rising water table;

(d) Schemes for the regulation of supplies to the inundation canals for the protection of existing irrigation.

(e) Extension of irrigation to new areas; and

(f) The generation, transmission and distribution of electrical energy.

90. The estimated cost of the projects completed and in progress at the end of March 1955, totalled 2,023 million rupees of which 969 million rupees was the estimated expenditure by that date. These projects were designed variously to (a) supply weir-controlled water for the irrigation of about 7·5 million acres, (b) reclaim an area of about 220,000 acres, and (c) provide 355,000 kw of electrical energy. By March 1955, about 810,000 acres of land had been brought under irrigation, 185,000 acres reclaimed, and 90,000 kw of generating capacity installed, representing respectively about 9 per cent, 84 per cent, and 25 per cent of the ultimate targets. The figures are given in Table 5.

TABLE 5

*Water and power resources development since independence*

| Name of scheme | Total estimated cost | Estimated expenditure up to March 1955 | Started in | Status | Results achieved by March, 1955 | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Area irrigated | Area reclaimed | Area drained | power |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | (Million rupees) | | | | (Thousand acres) | | | (kw) |
| I. MULTIPURPOSE PROJECTS : | | | | | | | | |
| Warsak scheme ... ... ... | 188·3 | 17·8 | 1949 | In progress | ... | ... | ... | ... |
| Kurram Garhi scheme ... ... | 43·3 | 19·3 | 1950 | Do. | ... | ... | ... | ... |
| Total ... | 231·6 | 37·1 | | | ... | ... | ... | ... |

### TABLE 5—*contd.*

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|
|  | (Million rupees) |  |  |  |  | (Thousand acres) |  | (kw) |
| **II. IRRIGATION :** |  |  |  |  |  |  |  |  |
| Gudu barrage project ... ... | 304·4 | 19·7 | 1953 | In progress | ... | ... | ... | ... |
| Ghulam Mohammad barrage ... | 273·7 | 161·6 | 1950 | Do. | ... | ... | ... | ... |
| Thal irrigation ... ... ... | 155·5 | 144·8 | 1939 | Do. | 450 | ... | ... | ... |
| Taunsa barrage project ... ... | 209·6 | 34·1 | 1953 | Do. | ... | ... | ... | ... |
| Marala-Ravi link ... ... ... | 82·9 | 42·6 | 1954 | Do. | ... | ... | ... | ... |
| Bombanwala link ... ... ... | 97·6 | 83·0 | 1948 | Do. | ... | ... | ... | ... |
| Balloki-Sulemanki link ... ... | 78·5 | 78·5 | 1951 | Do. | ... | ... | ... | ... |
| Rasul tubewells ... ... ... | 44·0 | 34·4 | 1944 | Do. | ... | ... | ... | ... |
| Abbasia canal ... ... ... | 38·3 | 5·5 | 1946 | Do. | 73 | ... | ... | ... |
| General reclamation ... ... | 10·6 | 10·6 | ... | Completed | ... | 175 | ... | ... |
| 6 misc. irrigation schemes ... ... | 32·3 | 28·0 | 1951 | In progress | 4 | ... | ... | ... |
| 3 misc. reclamation schemes ... | 16·0 | 12·0 | 1954 | Do. | ... | 3 | ... | ... |
| 14 misc. irrigation schemes ... | 16·6 | 9·1 | 1948 | Do. | 11 | 7 | ... | ... |
| 2 misc. irrigation schemes ... ... | 6.5 | 6·5 | 1951 | Completed | 138 | ... | ... | ... |
| 7 minor irrigation schemes ... ... | 5·1 | 1·6 | ... | ... | 38 | ... | ... | ... |
| 4 minor irrigation schemes ... ... | 3·3 | 1·1 | ... | ... | 70 | ... | ... | ... |
| 2 minor irrigation schemes ... ... | 0·3 | 0·3 | ... | ... | 26 | ... | ... | ... |
| Total ... | 1375·2 | 673.4 |  |  | 810 | 185 | ... | ... |
| **III. POWER :** |  |  |  |  |  |  |  |  |
| Rasul hydel scheme ... ... | 90·5 | 69·3 | 1946 | In progress | ... | ... | ... | 22,000 |
| Karachi electric supply ... ... | 119·5 | 57·2 | 1950 | Do. | ... | ... | ... | 23,000 |
| Thal power ... ... ... | 26·6 | 10·5 | 1954 | Do. | ... | ... | ... | ... |
| Hyderabad thermal grid ... ... | 36·1 | 4·1 | 1952 | Do. | ... | ... | ... | ... |
| Nationalisation of Sind electrical undertakings. | 9·9 | 2·4 | 1947 | Do. | ... | ... | ... | 7,392 |
| Dargai and Malakand hydro-plants and extensions. | 69·7 | 59·3 | 1949 | Do. | ... | ... | ... | 30,00 |
| Interlinking N.-W. F. P. and Punjab grid system. | 9·7 | 9·7 | 1952 | Do. | ... | ... | ... | ... |
| Lyallpur thermal ... ... ... | 8·3 | 8·3 | 1950 | Do. | ... | ... | ... | ... |
| Montgomery thermal ... ... | 8·9 | 8·9 | 1952 | Do. | ... | ... | ... | ... |
| Extension of local distribution system in Punjab towns. | 5·3 | 5·1 | ... | Do. | ... | ... | ... | ... |
| Abandoned electricity schemes ... | 7·4 | 7·4 | 1947 | Completed | ... | ... | ... | 6,32 |
| Lyallpur diesel (10,000) ... ... | 5·9 | 5·7 | 1954 | In progress | ... | ... | ... | ... |
| Gujranwala-Daska-Sialkot extension ... | 5·8 | 2·5 | 1952 | Do. | ... | ... | ... | ... |
| Distribution in area between Jhelum and Wah. | 3·0 | ... | ... | Do. | ... | ... | ... | ... |
| 4 misc. power shemes ... ... | 5·4 | 5·2 | 1953 | Do. | ... | ... | ... | 60 |
| 5 power schemes ... ... ... | 3·8 | 2·6 | 1953 | Do. | ... | ... | ... | 62 |
| Total ... | 415·8 | 258·2 |  |  | ... | ... | ... | 89,9 |
| Grand Total ... | 2022·6 | 968·7 |  |  | 810 | 185 | ... | 89,9 |

91. The disparity between the cost incurred and the accomplishments achieved is occasioned by the fact that heavy initial investments have had to be made in the larger projects, such as the Ghulam Mohammad Barrage, the Thal Irrigation development, and the Rasul Tubewells, but some considerable time must elapse before the contemplated benefits can accrue.

92. In the Ghulam Mohammad Barrage project, the headworks have been completed, but the construction and re-modelling of the canal network and the colonisation of the relative lands, have lagged behind, with the result that not only have the irrigation benefits been delayed, but the recovery of capital outlay through betterment levies, water rates etc., has been deferred.

93. In the Thal, while the canal system has practically been completed, colonisation work has not kept pace with the provision of irrigation facilities. Lands have to be prepared for irrigation farming, necessitating considerable investments, and it will be many years before the project is fully developed.

94. The Rasul tubewell scheme had originally been linked with the Rasul hydro-electric project, which was to supply the power for pumping. Unfortunately, owing to the extreme paucity of electrical energy in the country, Rasul power had to be diverted to urgent industrial uses. The project has, therefore, failed to serve its originally designed purpose, although, 1,551 out of a total of 1,860, tube wells have already been installed.

95. Only two multi-purpose projects were under-taken, *viz*, the Warsak and the Kurram Garhi, estimated to cost Rs. 232 million of which Rs. 37 million were the estimated expenditure by March 1955. There was no substantial progress on the Warsak owing to changes in plans and delays in arriving at important decisions.

96. Supplies to the canals depending on the three eastern-most tributaries have been irregular and uncertain since the partition. The Bambanwala-Ravi-Bedian Link was constructed to simplify delivery problems to the Central Bari Doab Canals.

97. The Sutlej valley canals have always experienced, from their very inception, acute shortages of supply at the times of sowing and maturing of the *kharif* crops. These deficiencies have been aggravated further by the short supplies in the Sutlej since partition. The completion of the Marala-Ravi and Balloki-Suleimanki links will increase the available supplies for the Sutlej valley canals by diverting some Chenab and Ravi waters into the Sutlej river, and will also make it possible to bring reclamation supplies to canals east of the Chenab.

98. The Ghulam Mohammad, Gudu, and Taunsa barrage schemes were planned to assure regular supplies to the vast network of inundation canals taking off the main Indus and to bring further culturable waste land under irrigation. The Gudu barrage construction was delayed because the machinery did not arrive in time.

99. The demand for more cultivated land has grown with the increase in population. The Thal project was designed to draw water from the main Indus to irrigate an area of about 1·2 million acres. The Abbasia canal Extension aims at developing the Crown waste areas of 274,000 acres, which had been abandoned in 1935. The main canals and feeders have been built but not yet lined, and were opened to permit the irrigation of 130,000 acres.

100. The total estimated cost of all power projects in progress in the pre-Plan period was Rs. 416 million, of which Rs. 258 million or 62 per cent was the estimated expenditure by March 1955. Of the total of 90,000 kw capacity installed, 52,000 kw is accounted for by the two hydro-electric projects, *viz*, the Rasul (22,000 kw) on the Upper Jhelum canal and the Dargai and Malakand Extensions (30,000 kw) on the Swat canal The estimated cost of these two projects is Rs. 160 million of which Rs. 129 million was the estimated expenditure by March 1955. The only other major addition to the installed capacity was 23,000 kw in Karachi, where an extension for generating 30,000 kw is now under construction, and another for 30,000 kw is planned for completion by 1960. The estimated cost of these, including the distribution system, is about Rs. 119 million of which Rs. 57 million was the estimated expenditure by March 1955. These figures do not include generating capacity installed by private industry, which in Karachi alone amounted to 28,000 kw by March 1955, and to 51,000 kw in the whole of the Indus Basin. Very little progress was made on schemes for the transmission and distribution of supplies. These are estimated to cost Rs. 60 million, of which only 21 million was spent by March 1955. The balance of Rs. 51 million was spent on miscellaneous small thermal projects and the acquistion of isolated or abandoned electricity schemes. With the installation of 90,000 kw since independence, the total capacity installed for public supply in the Indus Basin rose to 161,000 kw, representing 124, 000 kw of firm power, against 57,000 kw at the time of the partition—an increase of more than 100 per cent. While the progress may appear to be satisfactory in terms of percentage increase, it was wholly inadequate to satisfy potential needs, or to keep pace with industrialisation. Normally, hydro-electric projects take years for investigation and implementation. To add to this, there were special causes which delayed the execution of the only major hydel project in the basin, the Warsak. It was proposed to fill in the gap by installing thermal plants, but these also suffered from administrative delays.

101. Large areas of formerly productive lands have gone out of cultivation. It has been estimated that over 6 million acres have already been effected to such an extent that reclamation is necessary for bringing them back to normal production. The annual rate of deterioration is very large. The Chuharkana reclamation experimental scheme has been designed to reclaim certain badly-salted lands in a water-logged area, by establishing improved methods of irrigation and agricultural practices, but has not progressed as scheduled, owing to difficulties in the acquisition of land. The Punjab Soil Reclamation Board was constituted under the Punjab Soil Reclamation Act of 1952 to deal with the problem of salinity and water-logging, but has not yet been able to function effectively.

102. With nearly all the unregulated surface supplies of its rivers utilised, the Indus Basin now faces the final stage of its irrigation development—the construction of multi-purpose storage projects, which will also provide large blocks of cheap power, and the exploitation of its ground-water resources.

## THE PROGRAMME IN THE PLAN PERIOD

103. The Plan provides for (a) the maximum progress, consistent with efficiency, on projects already under execution, (b) starting work on certain important schemes, and (c) general water resource investigations as well as detailed investigations of specific projects. The total cost involved is estimated to be Rs. 3,756 million, of which Rs. 774 million was the estimated expenditure up to March 1955. A sum of Rs. 1,876 million, or 50 per cent of the total estimated costs, is proposed for expenditure during the Plan period. The figures are given in Table 6. These projects have been designed :

(a) To provide irrigation to 4·26 million acres of uncultivated land, of which 2·35 million will be attained by 1960;

(b) To improve irrigation facilities or reclaim from salinity and water-logging an area of 8·76 million acres, of which 3·24 million will be accomplished by 1960;

(c) To generate 731,000 kw of electrical energy, of which 431,000 will be installed during the Plan period ; and

(d) To improve supplies for the areas commanded by the Sutlej Valley Canals.

### TABLE 6

*Estimated expenditure on water and power resources development 1955—60.*

| Name of scheme | Total estimated cost | Estimated expenditure upto March, 1955 | 1955-56 | 1956-57 | 1957-58 | 1958-59 | 1959-60 | 1955-60 | Balance to complete. |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| **I. GENERAL INVESTIGATION :** | | | | | | | | | |
| Comprehensive investigation ... | 5·7 | ... | 0·4 | 0·7 | 1·1 | 1·6 | 1·9 | 5·7 | ... |
| Studies of reservoir systems ... | 5·5 | ... | ... | ... | 1·1 | 2·2 | 2·2 | 5·5 | ... |
| Ground water investigations ... | 87·0 | 0·5 | 8·7 | 19·6 | 19·6 | 19·0 | 19·6 | 86·5 | ... |
| Investigation of 3 multipurpose projects. | 2·2 | 0·4 | 0·6 | 0·2 | 0·3 | 0·2 | 0·5 | 1·8 | ... |
| Investigation of 35 irrigation projects. | 11·4 | ... | 1·4 | 1·6 | 1·1 | 1·1 | 1·6 | 6·8 | 4·6 |
| Total ... | 111·8 | 0·9 | 11·1 | 22·1 | 23·2 | 24·1 | 25·8 | 106·3 | 4·6 |
| **II. MULTIPURPOSE DEVELOPMENT :** | | | | | | | | | |
| Mangla dam project ... ... | 983·0 | 5·8 | 6·0 | 54·9 | 101.0 | 125·4 | 151·2 | 438.5 | 538·7 |
| Warsak scheme ... ... ... | 188·3 | 17·8 | 23·3 | 34·8 | 40.7 | 40·7 | 29·0 | 168.5 | 2·0 |
| Kurram Garhi scheme ... ... | 43·4 | 19·3 | 11·6 | 8·7 | 3.8 | ... | ... | 24.1 | ... |
| Upper Swat extension ... ... | 38·0 | ... | ... | 0·6 | 1.2 | 11·6 | 14·5 | 27.9 | 10·1 |
| Central workshop and laboratories | 12·4 | 0·3 | 0·5 | 5·8 | 5.8 | ... | ... | 12.1 | ... |
| Total ... | 1265·1 | 43·2 | 41·4 | 104·8 | 152·5 | 177·7 | 194·7 | 671·1 | 550·8 |
| **III. IRRIGATION :** | | | | | | | | | |
| Guddu barrage ... ... ... | 304·4 | 19·7 | 27·1 | 22·1 | 22·1 | 22·1 | 16·6 | 110·0 | 174·7 |
| Ghulam Mohammad barrage ... | 273·7 | 161·6 | 18·8 | 18·8 | 14·4 | 13·2 | 11·6 | 76·8 | 35·3 |
| Thal irrigation ... ... ... | 155·5 | 144·7 | 7·6 | 3·2 | ... | ... | ... | 10·8 | ... |
| Sukkur drains ... ... ... | 163·3 | ... | ... | 3·3 | 4·4 | 4·5 | 4·4 | 16·8 | 146·7 |
| Taunsa barrage ... ... ... | 209·6 | 34·1 | 27·6 | 26·0 | 20·9 | ... | ... | 74·5 | 101·0 |
| Mangla-Marala link ... ... | 110·5 | ... | ... | ... | ... | 33·2 | 55·2 | 88·4 | 22·1 |
| Marala-Ravi link ... ... | 82·9 | 42·6 | 23·7 | 16·6 | ... | ... | ... | 40.3 | ... |
| Bombanwala Sutlej link ... ... | 97·6 | 83·0 | 8·0 | 6·6 | ... | ... | ... | 14·6 | ... |
| Drainage Rechna, Chaj and Sind Sagar. | 32·0 | ... | 1·1 | 2·2 | 2·2 | 2·2 | 4·5 | 12·2 | 19·8 |
| Anti-water-logging Khairpur ... | 23·4 | 0·1 | 1·2 | 4·7 | 5·8 | 5·8 | 5·8 | 23·3 | ... |
| Warsak canals ... ... ... | 19·6 | 0·4 | 4·3 | 4·8 | 5.5 | 4·1 | 0·5 | 19·2 | ... |
| Hazara canals ... ... ... | 11·0 | ... | 0·2 | 0·3 | 3.3 | 4·4 | 2·8 | 11·0 | ... |
| Bara canals ... ... ... | 9·9 | ... | ... | ... | 0·5 | 5·5 | 3·9 | 9·9 | ... |
| Nara development ... ... | 9·8 | ... | 3·9 | 4·0 | 1·9 | ... | ... | 9·8 | ... |
| Pehur development ... ... | 7·5 | 2·2 | 5·3 | ... | ... | ... | ... | 5·3 | ... |
| 4 reclamation schemes ... ... | 37·0 | 2·6 | 6·8 | 7·0 | 4·5 | 6·5 | 7·4 | 32·2 | 2·2 |
| 14 small irrigation schemes ... | 37·8 | 4·0 | 8·4 | 4·6 | 7·5 | 8·0 | 4·9 | 33·4 | 0·4 |
| 7 tubewell schemes ... ... | 113·3 | 1·3 | 14·2 | 15·1 | 15·8 | 13·5 | 12·7 | 70·3 | 41·7 |
| 5 percolation well schemes ... | 9·0 | ... | 0·2 | 1·6 | 1·9 | 2·5 | 2·8 | 9·0 | ... |
| Total ... | 1707·8 | 496·3 | 158·3 | 141·0 | 109·7 | 125·4 | 133·2 | 667·6 | 543·9 |

TABLE 6—*contd.*

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|
| IV. POWER : | | | | | | | | | |
| Karachi electric supply (inclusive of 30 M. W. new plant). | 119·5 | 57·3 | 19·1 | 9·0 | 17·1 | 13·9 | 3·1 | 62·2 | ... |
| Rasul hydel ... ... ... | 90·5 | 69·3 | 12·7 | 3·8 | 3·5 | 1·2 | ... | 21·2 | ... |
| Warsak high voltage grid ... ... | 80·5 | ... | 0.7 | 33·8 | 33·8 | 12·2 | ... | 80·5 | ... |
| Malakand rural extension ... | 40·4 | 31·1 | 2·2 | 1·6 | 1·6 | 1·4 | 2·5 | 9·3 | ... |
| Sui gas power station (105,000 kw.) | 100·0 | ... | ... | 18·0 | 30·0 | 28·0 | 24·0 | 100·0 | ... |
| Lyallpur steam (6,000 kw) ... | 7·0 | ... | 1·3 | 2·7 | 3·0 | ... | ... | 7·0 | ... |
| Hyderabad thermal system ... | 36·0 | 4·0 | 2·7 | 6·7 | 8·3 | 6·7 | 7·6 | 32·0 | ... |
| Sukkur thermal system ... | 34·8 | ... | 0·2 | 4·0 | 8·0 | 9·3 | 13·3 | 34·8 | ... |
| Thal power ... ... ... | 26·6 | 10·5 | 8·0 | 8·1 | ... | ... | ... | 16·1 | ... |
| Gujranwala hydel ... ... | 21·3 | 6·5 | 10·3 | 3·0 | 1·5 | ... | ... | 14·8 | ... |
| Shadiwala hydel ... ... | 15·6 | 6·0 | 6·4 | 1·3 | 1·9 | ... | ... | 9·6 | ... |
| Chichokimalian hydel ... ... | 14·8 | 7·6 | 7·2 | ... | ... | ... | ... | 7·2 | ... |
| Nationalization of Sind electrical undertakings. | 9·9 | 2·4 | 2·0 | 1·0 | 1·0 | 1·0 | 1·8 | 6·8 | 0·7 |
| Interlink Punjab-Frontier ... ... | 9·6 | 9·6 | ... | ... | ... | ... | ... | ... | ... |
| Lyallpur steam (2×4,000) ... | 8·3 | 8·3 | ... | ... | ... | ... | ... | ... | ... |
| Montgomery steam (2×3,000) ... | 8·9 | 8·9 | ... | ... | ... | ... | ... | ... | ... |
| Lyallpur diesel (10,000) ... ... | 5·9 | 5·7 | 0·2 | ... | ... | ... | ... | 0·2 | ... |
| Gujranwala-Daska-Sialkot extension | 5·8 | 2·5 | 3·2 | 0·1 | ... | ... | ... | 3·3 | ... |
| Kurram Garhi transmission ... | 5·1 | 1·0 | 1·2 | 2·6 | 0·3 | ... | ... | 4·1 | ... |
| 22 Small electricity schemes ... | 30·9 | 2·4 | 10·3 | 7·6 | 1·9 | 1·5 | 1·0 | 22·3 | 6·2 |
| Total ... | 671·4 | 233·1 | 87·7 | 103·3 | 111·9 | 75·2 | 53·3 | 431·4 | 6·9 |
| Grand Total ... | 3756·1 | 773·5 | 298·6 | 371·1 | 397·3 | 402·5 | 406·9 | 1876·4 | 1106·2 |

104. The expected results during the Plan period will represent (a) 55 per cent, (b) 37 per cent, and (c) 59 per cent respectively of the designed goals. A substantial part of the proposed expenditure during 1955—60 on irrigation and multi-purpose developments are for maintaining and improving the productive capacity of the lands already irrigated. New lands will generally be served by schemes which had been started before 1955, and on which substantial expenditure had already been incurred, such as the Thal canals, and the Ghulam Mohammad, Taunsa, and Guddu barrage schemes; on a large number of developments,

expenditures previously made will produce results during the Plan period, and similarly, expenditure in the Plan will produce results after 1960. The expected results during the Plan period are summarised in Table 7.

### TABLE 7

*Expected results from water and power resources development, 1955—60*

| Name of scheme | Period of execution | | Expected results during the Plan period | | | | |
|---|---|---|---|---|---|---|---|
| | Commencement | Completion | Area (a) new | Irrigated (b) old | Area re-claimed | Area re-claimed | Power |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| | | | (Thousand Acres) | | | | |
| **I. GENERAL INVESTIGATION :** | | | | | | | |
| Comprehensive investigation ... | 1956 | 1960 | ... | ... | ... | ... | ... |
| Studies of reservoir systems ... | 1958 | 1960 | ... | ... | ... | ... | ... |
| Ground water investigations ... | 1956 | 1960 | ... | ... | ... | ... | ... |
| Investigation of 3 multipurpose project. | 1954 | 1960 | ... | ... | ... | ... | ... |
| Investigation of 35 irrigation projects. | 1955 | 1960 | ... | ... | ... | ... | ... |
| **II. MULTIPURPOSE DEVELOPMENT :** | | | | | | | |
| Mangla dam project ... ... | 1955 | In progress | ... | ... | ... | ... | ... |
| Warsak scheme ... ... ... | 1954 | Do. | ... | ... | ... | ... | 160,000 |
| Kurram Garhi scheme ... ... | 1954 | 1957 | 120 | 112 | ... | ... | 4,000 |
| Upper Swat extension ... ... | 1957 | In progress | ... | ... | ... | ... | ... |
| Central workshops and laboratories | 1955 | Do. | ... | ... | ... | ... | ... |
| Total ... | | | 120 | 112 | ... | ... | 164,000 |
| **III. IRRIGATION :** | | | | | | | |
| Guddu barrage ... ... ... | 1953 | In progress | ... | 950 | ... | ... | ... |
| Ghulam Mohammad barrage ... | 1950 | Do. | 549 | 525 | ... | ... | ... |
| Thal irrigation ... ... ... | 1939 | 1956 | 270 | ... | ... | ... | ... |
| Sukkur drains ... ... ... | 1957 | In progress | ... | ... | ... | ... | ... |
| Taunsa barrage ... ... ... | 1954 | 1957 | 43 | 667 | ... | ... | ... |
| Mangla Marala link ... ... | 1959 | In progress | ... | ... | ... | ... | ... |
| Marala Ravi link ... ... | 1954 | 1957 | 38 | 200 | ... | ... | ... |
| Bambanwala Sutlej link ... ... | 1951 | 1955 | ... | ... | ... | ... | ... |
| Drainage Rechna, Chaj and Sind Sagar. | 1955 | In progress | ... | ... | ... | ... | ... |
| Anti-water-logging Khairpur ... | 1954 | 1960 | 10 | 27 | ... | ... | ... |
| Warsak canals ... ... ... | 1954 | 1959 | 10 | ... | ... | ... | ... |
| Hazara canal ... ... ... | 1956 | 1960 | ... | ... | ... | ... | ... |
| Bera canal ... ... ... | 1958 | 1960 | ... | ... | ... | ... | ... |
| Nara development ... ... | 1954 | 1956 | 16 | ... | ... | ... | ... |
| Pehur development ... ... | 1954 | 1956 | ... | 48 | ... | ... | ... |
| 4 reclamation schemes ... ... | 1954 | In progress | ... | ... | 374 | ... | ... |
| 14 small irrigation schemes ... | 1954 | Do. | 368 | 41 | ... | ... | ... |
| 7 tubewell schemes ... ... | 1944 | Do. | 913 | 63 | 190 | ... | ... |
| 5 percolation well schemes ... | 1956 | 1960 | 8 | 50 | ... | ... | ... |
| Total ... | | | 2,225 | 2,571 | 564 | ... | ... |

TABLE 7—*contd.*

| Name of scheme | Period of execution | | Expected results during the Plan period | | | | |
|---|---|---|---|---|---|---|---|
| | Commencement | Completion | Area (a) new | Irrigated (b) old | Area re-claimed | Area re-claimed | Power |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| | | | (Thousand Acres) | | | | |
| IV. POWER : | | | | | | | |
| Karachi electric supply (inclusive of new plant). | 1954 | 1960 | ... | ... | ... | ... | 60,000 |
| Rasul hydel ... ... ... | 1946 | 1959 | ... | ... | ... | ... | ... |
| Warsak high voltage grid ... | 1956 | 1960 | ... | ... | ... | ... | ... |
| Malakand rural-extension ... | 1949 | In progress | ... | ... | ... | ... | ... |
| Sui gas power station (105,000 kw) | 1957 | 1960 | ... | ... | ... | ... | 105,000 |
| Lyallpur steam (6,000 kw) ... | 1956 | 1958 | ... | ... | ... | ... | 6,000 |
| Hyderabad thermal system ... | 1952 | 1960 | ... | ... | ... | ... | 15,000 |
| Sukkur thermal system ... | 1956 | 1960 | ... | ... | ... | ... | 15,000 |
| Thal power ... ... ... | 1954 | 1957 | ... | ... | ... | ... | 7,500 |
| Gujranwala hydel ... ... | 1954 | 1957 | ... | ... | ... | ... | 12,000 |
| Shadiwal hydel ... ... | 1954 | 1957 | ... | ... | ... | ... | 12,000 |
| Chichokimalian hydel ... ... | 1954 | 1956 | ... | ... | ... | ... | 12,000 |
| Nationalisation of Sind electrical undertakings. | 1947 | 1960 | ... | ... | ... | ... | ... |
| Interlink Punjab Frontier ... ... | 1954 | 1955 | ... | ... | ... | ... | ... |
| Lyallpur steam (2×4,000) ... | 1950 | 1955 | ... | ... | ... | ... | 4,000 |
| Montgomery steam (2×3,000) ... | 1952 | 1955 | ... | ... | ... | ... | 6,000 |
| Lyallpur diesel ... ... ... | 1954 | 1957 | ... | ... | ... | ... | 9,000 |
| Gujranwala-Daska-Sialkot extension | 1952 | 1956 | ... | ... | ... | ... | ... |
| Kurram Garhi transmission ... | 1956 | 1958 | ... | ... | ... | ... | ... |
| 22 Small electricity schemes ... | 1954 | In progress | ... | ... | ... | ... | 3,150 |
| Total ... | | | ... | ... | ... | ... | 266,850 |
| Grand Total ... | | | 2,345 | 2,683 | 564 | ... | 430,850 |

(a) New irrigation.

(b) Improvement of irrigation facilities.

105. An adequate appraisal of the available and related resources is of fundamental importance in planning for an orderly, efficient and integrated development of the basin. The formulation of policies for the conservation and full use of these resources will need to be based on the collection and interpretation of all relevant basic data, which, at present,

are not adequate. A provision of Rs. 5·7 million has therefore been made in the Plan for the initiation of a long-term programme of comprehensive investigations, in order to make up this badly-felt deficiency.

106. The possibilities of utilisation of the existing natural and unregulated stream flows have already been more or less exhausted. The future development of irrigation will have to depend largely on the extent to which the surplus river flows can be conserved by storage. Moreover, to enable the exploitation of cheap and abundant supply of electrical energy, studies will have to be carried out in the upper reaches of the rivers and their tributaries, for the selection of suitable dam sites. A sum of Rs. 5·5 million has been provided in the Plan for the purpose.

107. Increasingly large quantities of ground water must be developed to replace the surface-water depletions, to augment supplies to the existing irrigated lands, and to meet new demands. The full development of this resource can proceed only if the main sources of ground water and their location, extent, nature, availability, behaviour, replenishment and quality are known with some degree of accuracy. An intensive and systematic investigation of ground water resource has been undertaken to determine the potentialities of its development. The Plan includes Rs. 87 million for this purpose.

108. A sum of Rs. 8·6 million has been provided for the detailed investigations of 35 specific multipurpose and irrigation schemes, mostly small schemes to serve local needs in undeveloped areas, so that the construction of such projects as are found feasible can be started immediately after 1960.

109. The total estimated cost of multi-purpose developments is Rs. 1,265 million of which we estimate that Rs. 671 million (53 per cent) will be spent during the Plan period. They are estimated to provide irrigation facilities for 120,000 acres of new land, improve irrigation facilities to an area of 112,000 acres, and add an installed capacity of 164,000 kw by 1960. Of the projects included under this head, the Warsak and the Kurram Garhi were under way at the beginning of 1955. The Mangla dam project is designed to have a live storage capacity of 3·5 million acre-feet, to yield about 9·5 million acre-feet of usable supplies for reclamation and improvement of existing irrigation, and to generate 300,000 kw of firm power on full development. Although 45 per cent of its total estimated cost will be incurred during 1955-60, none of the designed benefits will accrue till later. Of the total power capacity proposed at the Mangla dam, the first unit of 75,000 kw is expected to be installed by 1963-64 to meet the growing power requirements expected by that date. The Upper Swat extension is scheduled to be started in the third year of the Plan, if the detailed investigations and surveys, to be conducted during the first two years, prove its feasibility.

110. The total estimated cost of the 45 projects included under Irrigation is Rs. 1,708 million out of which an expenditure of Rs. 668 million or 39 per cent will be incurred during 1955-60. They are expected to provide irrigation facilities for 2·2 million acres of uncultivated lands, and improve those on 2·57 million acres of lands already cultivated.

111. The Plan provides for the completion of all link projects except the Mangla-Marala Link, on which work is scheduled to be started in the fourth year of the Plan period.

112. The Thal irrigation and Ghulam Mohammad, the Taunsa and the Gudu barrage projects were in progress at the beginning of the Plan period. The construction of the Upper Dera Ghazi Khan canal, heading at the Taunsa Barrage, and of the re-modelling of the Gudu canals, have not been included in the programme, because of the lack of evidence of preparation of detailed colonisation and settlement plans. It is suggested that

work on these be speeded up in the interest of economy, so that the investment on the barrages is not unnecessarily locked up for any avoidable length of time. The position will be reviewed on the receipt of such plans.

113. An allocation of Rs. 9·8 million for the Nara development in the Khairpur Division and a provision of Rs. 15·7 million for irrigation development in Bahawalpur Division have been made in the Plan, subject to the establishment of the feasibility of the projects.

114. Other irrigation schemes, mostly small, comprise :

(a) Diversion of stream flows into canals by gravity or lift; and

(b) Improvement, extension and re-modelling of existing canals.

115. A provision of about Rs. 80 million has been made in the Plan for the development of ground-water resources. Of the schemes included under this head, the main object of the Punjab tube-well project is to reduce waterlogging in the Bari Doab, Bambanwala-Ravi-Bedian link area, and the Lower and Upper Chenab canal zones. It will also augment the supply of water to the existing irrigated areas. The experimental Thal and Dera Ismail Khan tube-well projects will provide irrigation facilitlies for new lands. The sum of 80 million rupees includes 16 million for the provision of technical services, materials, and equipment, not locally available to individual farmers for the installation and improvement of percolation and tube-wells.

116. The progress of the tube-well programme will depend on that of the ground-water survey and the availability of cheap power. Considering the serious physical, technical and ecomomic limitations, and particularly the lack of low cost power, the Plan presents a programme for ground water development which may reasonably be expected to be attained. Although the present cost of hydro-electricity is somewhat less than that of energy from thermal plants, the price is still not low enough to justify large-scale expansion of tube-well pumping.

117. No plan comprising irrigation works can be effective unless it includes schemes for arresting the deterioration of land already in use. We recommend that, as soon as detailed results of the pilot reclamation projects at Chuharkana and Jaranwala become known, concrete plans should be prepared for the extension of proven methods to other affected areas. A provision of Rs. 32 million has been made in the Plan for such reclamation works.

118. We recognise the urgent need for a comprehensive programme to stabilise and improve the yields of existing irrigated areas. The Plan includes a systematic programme for the drainage of irrigated lands in the Rechna, Chaj and Sind Sagar doabs and in the Sukkur barrage zone. The problem of waterlogging in the Khairpur division, attributed to the Rohri canal, is very acute. A provision of Rs. 23 million has been made in the Plan for the execution of remedial measures subject to the test of feasibility. It also provides for detailed investigations of the drainage problems of the tracts served by the Ghulam Mohammad, Gudu and Taunsa barrages.

119. Small local water development schemes have been given higher priority in the Plan, because the interval between the construction of works and the accrual of benefits will be short and the increase in production quick, visible and local, stimulating local contributions, particularly in the form of labour and indigenous materials from the immediate beneficiaries. Small irrigation schemes can generally be undertaken by those directly benefited. Technical services, materials and essential equipment not available locally can be supplied by the Government.

120. All schemes included under power are scheduled for completion before 1960. Of the total estimated cost of Rs. 671 million of such schemes, about Rs. 431 million or 64 per cent is scheduled for expenditure during the Plan period. The Plan provides for the installation of 105,000 kw steam station using Sui gas as fuel. An additional 30,000 kw station is proposed for Karachi. A sum of Rs. 80·5 million is included for expenditure on the high-voltage Warsak transmission grid system, which must be completed by 1960, in order to make full and efficient use of all generating capacity linked to the grid. The Sukkur and the Hyderabad thermal systems and the Kurram Garhi transmission line are scheduled to be started and completed during the Plan period.

121. About 267,000 kw of electrical energy will be installed by 1960, in addition to the 164,000 kw to be installed as part of the multi-purpose developments, giving a grand total of 431,000 kw to be installed by public utilities during 1955-60. Private installations made by industries, such as the 29,200 kw at Daudkhel, but not intended to be connected to the power system, are expected to reach a total of 47,000 kw during the Plan period. The aggregate capacity expected to be installed during this period will, therefore, be 478,000 kw.

122. The results expected during the Plan period include (a) the provision of irrigation facilities to 2·35 million acres of uncultivated land, (b) the improvement of irrigation service to 2·68 million acres of cultivated land and (c) the reclamation of 0·56 million acres of saline and water-logged lands. Assuming that the existing production on the lands, for which irrigation facilities are improved, will, on the average, be raised by about 25 per cent and the increase in production on the reclaimed lands will suffice only to offset the progressive deterioration due to salinity and water-logging in other areas, it is estimated that the net increased production will be equivalent to that of about 2·9 million acres of irrigated virgin lands. Of the 2·35 million acres of uncultivated land to be irrigated, about one million acres lies in large compact blocks and will need a major colonisation effort. The balance is in relatively small patches interspersed in developed areas. Although, on the basis of accomplishment since independence, and taking into account the complicated factors during that period, the proposed programme may appear ambitious ; it is, non the less, attainable.

123. The addition of 478,000 kw during the Plan period, will raise the toal installed capacity to 690,000 kw in 1960. On the other hand, 52,000 kw of old thermal plant will become obsolete and have to be retired by that date, giving a net effective capacity in 1960 of 638,000 kw of which 492,000 kw may be considered as dependable capacity. Power requirements are estimated to be 405,000 kw by the same date. Hence the firm power available in 1960 is likely to be 121 per cent of the estimated requirements, providing surplus power which, however, is estimated to disappear by 1963, as load expands. During the Plan period itself, shortage of firm capacity will persist ; this can, as an emergency measure be overcome by using old plant normally held in reserve. This practice is tolerable for short periods of peak demand but adversely affects the quality of supply. The shortage in 1955 was about 30 per cent and will still be of that order in 1958. The present generation by public utilities of 14 units per head of population is expected to rise to 40 by 1960, after taking into account the probable population growth.

124. Experience has shown that the most critical time of development is at the start of a new scheme. While most of the programme comprises schemes which have already been started, there are a few of vital importance which it is proposed to start during the Plan period. Responsible and convincing findings of feasibility, firm and immediate decisions by Government, prompt, effective and responsible implementation of the work in the field, and simplified procurement and financial procedures will be the best assurance of fulfilling the programme.

125. The attainment of the programme goals will not necessarily follow the fulfilment of the programme. In the field of agricultural accomplishments, provision of irrigation facilities will not, by itself, assure increased production. Establishment of farm units, colonisation, settlement and actual cultivation are necessary, before the full productive capacity of new lands can be realised. It must be recognised that the past record of land colonisation and settlement, following the initiation of the relative schemes, does not provide an assurance of early attainment of the programme goals. As most of the large developments are now under way, an all-out effort will have to be made to accelerate sound programmes for colonisation and settlement, if the requirements for increased agricultural production are to be met. In the field of power, the programme proposes to more than double the existing installed capacity during the Plan period. Assuming a prompt start, the goal is capable of reasonable attainment, but, again, it must be remembered that installed capacity by itself cannot serve power loads, until adequate and efficient transmission and distribution facilities have been provided. The proposed installations at Warsak, at a site on the projected Sui-Lahore gas pipeline, and in the Khairpur and Hyderabad divisions, on the Sui-Karachi pipeline are critical developments. The early completion of the transmission systems, and more particularly the Warsak Grid, are essential, if the ever-growing power loads are at all to be served. Effective measures for colonisation, settlement, improvement of cultivative practices and the perfection of facilities for the widespread distribution of electrical energy, are essential for the full implementation of the Plan.

## COASTAL TRIBUTARIES AND DESERT STREAMS REGION

### General Description of the Region

126. The total area of the region is over 135,000 square miles, more than one-third of the whole country. For the most part, it is barren, with rugged mountains interspersed with semi-desert valleys and plains. The rocks are mainly sedimentary and highly folded, faulted and fissured. Many of the valleys are synclinal and have inland drainage. Only the Zhob river (a tributary of the Indus) in the north, and some streams in Mekran and Las Bela in the south, drain into the Arabian Sea.

127. Great aridity and large temperature ranges are the leading features of the climate. The uplands, between the elevations of 1,000 and 11,000 ft., experience intense cold, the minimum temperature ranging from—30°F to+30°F. The lowlands experience intense heat ranging from 90° to 130° F. The winds are strong for most of the year, both in the desert plains and the border valleys. The yearly average wind velocity at Quetta is about 6 miles per hour. Because of the high temperatures, low humidity and strong winds, the evaporation losses are very heavy, particularly from April to September.

128. The rainfall is scanty, badly distributed and exceedingly irregular. The number of really rainy days is extremely limited. The annual rainfall is hardly anywhere over 10 inches. In the plains the average is about 5 inches, going down, in some cases, to 2 inches. The average annual rainfall for the former Baluchistan Province is approximately 7·95 inches, and for the former Baluchistan States Union about 5·31.

### Natural resources

129. The land is divided into small units by natural barriers, and pockets of good culturable land of variable extent, are scattered all over the region, aggregating approximately to 10 million acres, which represents 12 per cent of the total land area. Of this, about 4 million are cultivated. Not all of this, however, is farmed at any one time. The actual acreage under crops varies from year to year, depending on the amount, intensity and time of occurrence of the rainfall. In an average year probably not more than 20 per cent of the cultivated acreage is sown to crops.

130. The gravelly fans (*damans*) below the hills are mostly uncultivable, but are suitable as range for livestock. It has been estimated that 50 per cent of the total land area could either be cultivated or developed as range land. Apart from the major river valleys the greater part of the area is perfectly arid and the only source of water is the uncertain and limited rainfall. There are innumerable small streams with insignificant flows and only in the larger ones does the flow continue for any considerable period of time. Perennial flow is found only in the lower reaches of the larger streams. Generally, flows are of a flashy character, the greater part of the run-off occurring at very high rates for very short periods. Most of the streams have steep bed slopes, carry a heavy load of silt, and traverse through young limestones, which are badly fractured and jointed. Practically no organised information exists for the proper assessment of the water resources of the region. As a very rough estimate, the stream flow in an average year may be placed at 4 to 5 million acre feet.

131. The geological formations and structures in the uplands favour the accumulation and transmission of ground water. There are a large number of springs, but the rate of flow in most of them is inconsequential. There appear, however, to be valuable and important ground-water supplies in certain areas, although they have not so far been precisely assessed. Pending completion of conclusive explorations and tests, firm estimates of their extent are not possible, but, as a rough approximation, the recoverable ground water may be said to be 2·5 million acre ft. per annum.

132. Fundamental data, which are a pre-requisite to drawing up a comprehensive programme of resource development, are completely lacking. The existing topographical maps are out of date, and lack in the details essential for the development of water resources. Accurate and precise levels are not available. The geology of the area has not been studied in any great detail, though a valuable series of aerial photographs, supplemented by ground geological reconnaissance surveys, have recently been completed.

133. At a number of stations, quite comprehensive meteorological records have been kept, some of which cover periods of 40 years or more. The number of rain-gauging stations, however, is insufficient to provide an adequate coverage, nor is there a systematic record of stream flows. Patchy and incomplete information is available in some cases, but no reliable data on floods, maximum and minimum flows, evaporation and percolation losses, silt loads, sub-surface yields etc., exist.

## Needs of the Region

134. The course, which land development should take in this region, is indicated below, in the order of importance :

(*a*) Conservation and development of range lands and forests ;
(*b*) Increased production of fodder;
(*c*) Improvement in volume, quality and variety of fruit production ; and
(*d*) Production of foodgrains for local consumption.

135. Agriculture in this region is precarious, owing to the scarcity and the spasmodic nature of the rainfall and the unreliability of stream flows. The incidence of crop failure is therefore high and the yields low, while large fertile lands are lying barren, for want of adequate and regular water supply. It is estimated that 8·5 million acres could be placed under foodgrains and speciality crops, for which 21·5 million acre-feet of water would be required annually, if it could be made available. At present only about 400,000 acres are under irrigated crops : at a guess, and allowing for prospective increases in productivity per acre, this acreage would have to be doubled by 1960 merely to provide present standards of consumption for the increased population.

136. Range lands and forests could be extended to cover 40 per cent of the total land area. At present the area under forests is far from adequate for the needs of the region. It is estimated that 1.5 million acre-feet of water would be required for irrigated plantations and nurseries. For a balanced livestock economy, fodder supplies would have to be increased to provide for winter feeding and reserves for periods of stress. Allowing for an area under irrigated fodder crops, equivalent to 5 per cent of the total range lands, the water requirements would be 4·25 million acre-feet per annum. Fruit culture is one of the region's greatest potential assets. The area under orchards could easily be increased by 200 per cent, and the total annual water requirements for the purpose would be 1 million acre-feet.

137. A reliable and perennial supply of drinking water to human settlements is necessary for any development in an arid region. This applies with greater force to range lands, where provision for adequate and well-spaced watering points is a basic need to enable a larger proportion of the range to be evenly grazed at all times of the year. It is estimated that 1 million acre feet of water would be required annually for this purpose.

138. The total water requirements of the region as far as can be seen at present may, therefore, be placed at about 30 million acre-feet per annum, of which (a) 8 would be required for the urgent needs of grazing, forests, fodder and fruit culture and (b) 22 for food crops. Developments in category (a) will pay higher dividends in the long run and efforts should be concentrated on them. Category (b) can be spread over a longer period. The position can be reviewed afresh during every future plan period, as more and more data are made available.

139. The whole region being more or less a desert, it is naturally the most backward in industrial, and therefore power development. In 1950, the total electrical load was estimated to be 2,500 kw., of which 2,000 was concentrated in Quetta. For purposes of the industrial and agricultural development programme in the Plan, the power requirement has been estimated to rise from 2,400 kw in 1955 to 3,700 k w in 1960.

### Long range development of the region

140. Such developments of the water and related resources, as have taken place in the region, are mostly of a local and indigenous character. There is evidence that some of the methods now practised were imported from Iran a long time back, and little or no improvements have taken place since, owing, chiefly, to the isolation from which the region suffered in the past. These methods are :

(*a*) Diversion of flows from perennial streams;

(*b*) Detention of flood waters and flows of non-perennial streams; and

(*c*) Tapping underground water source.

141. Perennial stream flows are limited, and the area irrigated by perennial canals very small, but relatively important because of the greater variety, larger yields, and higher values of the crop grown. The Nari and Pishin canals are provided with permanent works, and supply water to 17,500 and 5,000 acres of land respectively. Canals in the Lehri, Jhal and Tamboo areas, in Kalat Division, irrigate about 50,000 acres, and derive their supply from perennial flows by means of katcha bunds, which are washed away during the floods, and have to be replaced every year.

142. The purpose of detaining non-perennial flows is to convert short flood discharges into usable flows continuing over longer periods. This is done by simple detention reservoirs, diversion bunds of a semi-permanent type and canals, which require constant maintenance and frequent replacements. The water is conducted, as and when available, to the fields, which are bunded and terraced, in order to pond up the water and permit it to be stored in the soil for crop production. This method of irrigation, known as *sailaba*, is quite

extensive, but entails very large expenditure in maintaining the bunds and terraces. About 650,000 acres are provided with these facilities, but the area actually irrigated in any one year does not exceed 10 per cent of this.

143. Sub-surface weirs have been built for raising and diverting the underground flow in streams, but with indifferent success. Water stored in streams beds has also been drawn up by means of infiltration galleries, but, owing to lack of maintenance, the supplies made available have deteriorated progressively. Springs and *karezes* provide a substantial portion of the total perennial water supplies of the region. In the administered area of former Baluchistan alone, there were 1800 springs in 1908. Unfortunately, springs are allowed to flow without control. Although there are no dependable records, it is estimated, very roughly, that about 300,000 acres of land are irrigated annually by springs and *karezes.* The latter are a distinctive feature of this region. The *karez* is specially adapted to the local geological conditions, in which water is stored in the coarse material of the alluvial fans which are deposited by hill torrents at the edges of the valleys. It consists of a collection gallery built in the water bearing fan, with an underground conduit for leading the water to the surface by virtue of the difference in the slope of the conduit and the ground slopes. This method of exploiting underground water has been practised for centuries, and is still the main source of perennial supply in the region, there being roughly 600 *karezes.*

144. At present wells do not play a significant role in the total water supply of the region, although, in certain areas, they constitute the only available source. Well water in the plains and desert areas is generally saline. Open wells are usually fitted with Persian wheels, worked mostly by camels. The tube wells, now being drilled, are powered by diesel motors, which are expensive in both first and recurring costs. Artesian wells are also found in a few places. The total area irrigated by wells in the region is only about 7,000 acres.

145. The total area irrigated in the region by all methods averages during the year to about 400,000 acres. Where perennial and dependable water supplies are available and the climate and soils favourable, high quality fruits, nuts, and vegetables are grown. Where the supply of water is variable and less dependable, it is used for production of food grains, watering livestock and domestic purposes. Lack of evenly distributed water supplies for livestock causes overgrazing and destruction of the range. Vagaries of rainfall and, as a consequence, of crop and range production, keep the population on the move.

146. Because of the scarcity of water, the conservation of supplies becomes obligatory, but the temporary nature and poor maintenance of the bunds and terraces built for the purpose, often result in failures at critical times, and account for serious loss of water and damage to crops. Not much has been done to reduce excessive transportation losses in canal systems and *karezes* . The practice of allowing spring and *karezes* to flow throughout the year, regardless of demand, results in wastage of precious water.

### Possibilities of future development

147. The livestock industry requires extensive as well as efficient use of the range, and provision of dependable water supply. If watering places were wells paced, livestock would be able to graze broader areas, and destruction by over-grazing reduced. These would consist of wells as well as tanks to store surface run-off. Use of motor-driven pumps to raise water from wells would be expensive in initial and running costs, both of which involve foreign exchange, while the necessary fuels, machinery and spare parts would have to

be transported over long distances in rough country. Also the technical skills required for maintenance would not easily be available. The practicability of wind mills, for pumping water into small storage tanks, should be explored, and simple devices for spreading surface run-off should be adopted, in order to improve the quality of the range. Water required for production of forage and food for the herdsmen may be supplied through the use of indigenous methods, improved in design, construction and maintenance. It would be reasonable to assume that, by the application of efficient methods, the carrying capacity of the range could be doubled.

148. Comparatively good opportunities exist for intensive cultivation along the Arabian sea littoral, through the development of the coastal tributaries,—the Dasht, the Hingol, the Porali and the Hab, which have perennial flows, and on which weirs, dams, and reservoirs could usefully be built. Except these and possibly some of the others, such as, the Pishin Lora, and the Bolan water supplies should be developed or augmented in quantity and time by improved indigenous methods, and by the intensive use of contributed labour and local materials, supplemented by technical and professional skills, and the barest essential equipment and materials not available locally. Highly machanised methods and sophisticated designs may prove costly and fruitless in the region. The efficiency and permanence of bunds and terraces should be improved by establishing proper alignment, section and grade, and through the construction of simple spillways of a permanent nature. Losses in canals should be reduced by construction to capacities required to reduce over-topping of banks, by the installation of permanent escapes, and by lining the channels in sections of the greatest loss with finely graded soil. Simply designed permanent diversion structures, constructed of native materials, would reduce water losses, and the high costs of maintenance and replacement of failures. Such methods should at least double the quantity of water now being put to beneficial use.

149. Lining infiltration galleries and sections of *karezes*, which are below the hydraulic gradient with permanent pervious materials, locally available, would increase water yields, while lining those above the gradient with impervious material would reduce transportation losses, and both would result in lower costs of maintenance. The installation of control gates above the impervious section of the *karez* would induce greater storage in the aquifer, increasing the efficiency of established control, and so result in the conservation of the water supply. Capping and regulating releases from flowing springs would accomplish the same purpose. It is estimated that the usable water supply from those sources could thus be increased three times.

150. Open and tube-wells, now being installed in the region, should be constructed well within the limits of the safe sustained yield of the aquifer, in order to reduce the possibility of over-expansion, and the consequent loss of investment and subsequent distress. Intensive investigations of ground-water resources should herefore be directed to define those limits. Efficient methods of recovery of ground water at a reasonable cost in tracts where low-cost power is not available, have yet to be explored. No estimates are at present available of the potential recoveries from ground water by open or tube-wells.

151. The possibility should also be explored of using part of the diverted flood waters for replenishing existing or potential aquifers, as a sure means of improving the underground source of water supply. The torrential nature of the run-off makes the control and conservation of flood flows extremely difficult, and it is very desirable to see that all catchment areas are protected, as early as might be feasible, with a suitable mantle of vegetation to produce steadier flows of streams and springs, and to retard the silting up of reservoirs and canals.

152. There are few areas of concentrated demand for electric power in the region, and future developments would consist of a number of relatively small isolated thermal generating plants, using improved local fuels. Because of the transmission distances involved, and the small power loads, the prospect for low-cost electric energy appears dim. Possibilities exist of medium-sized hydro-electric schemes on the coastal tributaries, for which a demand may be found in the development of ports and of the littoral generally.

153. In relation to the development already attained, the opportunities for further development are considerable. Since no exhaustive survey has been made, it is impossible to forecast, with any degree of accuracy, the ultimate extent of development, but, whatever this might be, it is imperative that the known resources should be conserved and used efficiently. Comprehensive planning requires the collection, investigation and analysis of a wide variety of meteorological, hydrological and geological data, the extreme paucity of which is a great bar to immediate progress. The actual extent of the available water resources, which could be used for irrigation, is not known in precise terms. The conservation of flood flows becomes difficult because of the undetermined nature of the run-off characteristics. Evaporation losses are not known, although it is certain they must be considerable. It can also be said with certainty that the area suitable for irrigation far exceeds the presently supposed availability of usable water, which has been placed, very roughly, at 7·5 million acre-feet. Allowing 1 million acre-feet for speciality crops such as fruits, nuts, etc., and another million acre-feet for domestic, commercial, industrial and stock-watering purposes, the balance of 5·5 million acre-feet would be available for food and forage crops. This would suffice to irrigate about 2·25 million acres, for one crop only Considering that there is 10 million acres of culturable land in the region, it is obvious. that a major portion of it must remain unirrigated, or depend on such poor and uncertain rainfall as it gets. It is equally obvious, therefore, that development must proceed on the basis of the most economical use of water on the best soil for the production of the most suitable and paying crops. Hence, any long range programme of development should comprise :

(*a*) Extensive reconnaissance of water and related resources ;
(*b*) Intensive investigations and plans for improving efficiencies of existing developments ;
(*c*) Improvement of works to increase efficiencies ;
(*d*) Preparation of plans for further development ;
(*e*) Construction of such feasible projects as emerge from (d) ;

The requirements of such a programme are primarily :

(*a*) Professional and technical skills ;
(*b*) Strong local leadership ; and
(*c*) Supply of essential items of equipment and materials, not available locally.

### Development since Independence

154. The developments undertaken in the region since independence comprise :

(*a*) Storage reservoirs ;
(*b*) Diversion dams and weirs ;
(*c*) Sub-surface weirs ;
(*d*) Development of ground water ; and
(*e*) Miscellaneous minor irrigation schemes.

155. The estimated cost of the projects started since independence and completed by or in progress at the end of March 1955, totalled Rs. 7·2 million of which Rs. 5·0 millions was the estimated expenditure by that date. The projects are designed to provide irrigation facilities to about 60,000 acres. By March 1955 about 8,200 acres of land were

brought under irrigation, representing 14 per cent of the designed accomplishments. The figures are given in Table 8. These Totals do not include expenditure on water developments financed entirely on non-Government account nor their accomplishments. No data relating to them are available, but they are a relatively small proportion of the total.

TABLE 8

*Water and power resources development since independence*

| Name of scheme | Total estimated cost | Estimated expenditure up to March, 1955 | Started in | Status | Results achieved by March, 1955 | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Area irrigated | Area reclaimed | Area drained | Power |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | (Million rupees) | | | | (Thousand acres) | | | (kw) |
| IRRIGATION : | | | | | | | | |
| Bolan dam project | 4·7 | 2·1 | 1953 | In progress | ... | ... | ... | ... |
| Anambar weir project | 0·8 | 1·0 | 1948 | Completed | ... | ... | ... | ... |
| Zargi Tangi | 0·3 | 0·4 | 1946 | Do. | 1·2 | ... | ... | ... |
| Narechi irrigation | 0·2 | 0·3 | 1949 | Do. | 0·5 | ... | ... | ... |
| Sub-surface weir at Brewery Quetta | 0·1 | 0·1 | 1947 | Abandoned | ... | ... | ... | ... |
| Duki water course | 0·1 | 0·1 | 1949 | Completed | 0·8 | ... | ... | ... |
| 120 minor irrigation schemes | 1·0 | 1·0 | ... | Nearly completed. | 5·7 | ... | ... | ... |
| Total | 7·2 | 5·0 | | | 8·2 | ... | ... | ... |

156. The actual cost figures have, in all cases, exceeded the project estimates, while not even a fraction of the expected benefits has been realised. This may be attributed to the fact that the basic data, essential for drawing up sound projects, were almost completely lacking, and most of the schemes were undertaken prematurely. Some schemes were either abandoned when half completed, like the sub-surface weir at the Murree Brewery, or ended in partial failure like the Zargi Tangi. In most of them, like the Anambar, the Norechi, and the Zargi Tangi the unwarranted expectations of high availabilities of supply were not realised, with the result that the schemes are not functioning as projected. In the case of the Anambar, even the available supply is not being fully utilized, as the final distribution of water is still in dispute. The execution of the Bolan Dam project, designed to store and divert the flows of the Bolan river, was considerably delayed for various reasons.

157. Ground water is destined to play an important role in the future development of this region. It is necessary to delineate areas which show promise of development by tubewells. Two drilling rigs are actually in operation for experimental purposes, and, 31 bores have been hitherto drilled, of which 15 have proved successful. The cultivators were also encouraged to dig percolation wells, with the help of long-term "*taccavi*" loans.

158. The minor irrigation works consisted of :

(*a*) The improvement of the existing sources of supply by lining irrigation channels and water courses ;

(*b*) The extension of sailaba cultivation ;

(*c*) The excavation of karezes and opern wells; and

(*d*) The improvement of springs, karezes, etc.

159. There was hardly any development in the field of power. The total installed capacity in 1955 was 2,800 kw—an increase of 600 kw since 1947, because of the addition of new diesel sets to the Quetta Power Station. The new woollen mill at Harnai has installed a small generating plant of its own.

### The programme in the Plan period

160. The Plan includes comprehensive general investigations as well as detailed investigations of specific schemes, and the construction of small irrigation and power projects. The total cost of the schemes included in the Plan is estimated to be Rs. 164 millions, of which Rs. 2·5 millions was the estimated expenditure up to March 1955. A provision of Rs. 58 million (or 34 per cent of the total) has been made for expenditure during the Plan period. The figures are given in Table 9 below. The schemes are designed to irrigate 907,000 acres, and produce 1,225 kw of power. It is expected that, by 1960, an area of 186,000 acres will be in receipt of the benefits of irrigation, and the whole of the 1,225 kw of additional power capacity installed, representing 21 per cent and 100 per cent of the ultimate expected results. These expected results are shown in Table 10. The Plan includes the completion of schemes that were in progress at the beginning of 1955, such as the Bolan Dam Project. It also provides for a start on the construction of such of the canals from the Gudu Barrage as serve lands in the region, although this item might, with equal propriety, have been included in the Indus Basin.

TABLE 9

*Estimated expenditure on water and power resources development* 1955—60.

(Million rupees)

| Name of Scheme. | Total estimated cost | Estimated expenditure up to March, 1955 | Expenditure Estimate for : | | | | | | Balance to complete |
|---|---|---|---|---|---|---|---|---|---|
| | | | 1955-56 | 1956-57 | 1957-58 | 1958-59 | 1959-60 | 1955-60 | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| I. GENERAL INVESTIGATION : | | | | | | | | | |
| Comprehensive investigation ... | 3·0 | ... | 0·2 | 0·3 | 0·5 | 0·8 | 1·1 | 3·0 | ... |
| Investigation of : | | | | | | | | | |
| (1) Aghor Hingol multipurpose project. | 0·5 | ... | ... | ... | 0·2 | 0·2 | 0·2 | 0·5 | ... |
| (2) Gharok multipurpose project ... | 0·2 | ... | 0·1 | 0·1 | ... | ... | ... | 0·2 | ... |
| Investigation of 2 irrigation schemes ... | 1·9 | ... | ... | 0·6 | 1·1 | 0·1 | 0·1 | 1·9 | ... |
| Total ... | 5·6 | ... | 0·3 | 1·0 | 1·8 | 1·1 | 1·4 | 5·6 | ... |
| II. IRRIGATION : | | | | | | | | | |
| Flood irrigation schemes ... ... | 55·3 | ... | 0·1 | 0·3 | 0·9 | 1·3 | 1·8 | 4·4 | 50·9 |
| Canals from Gudu ... ... | 23.2 | ... | 0·2 | 0·5 | 3·3 | 5·5 | 7·7 | 17·2 | 6·0 |
| Ground water development ... | 40·4 | ... | 1·1 | 2·2 | 2·3 | 2·1 | 1·9 | 9·6 | 30·8 |
| Dasht river project ... ... | 11·0 | ... | ... | ... | ... | 1·1 | 1·1 | 2·2 | 8·8 |
| Lining irrigation canals ... ... | 7·8 | ... | 0·1 | 0·1 | 0·2 | 0·5 | 0·4 | 1·3 | 6·5 |
| Bolan dam project ... ... | 4·7 | 2·1 | 2·6 | ... | ... | ... | ... | 2·6 | ... |
| 15 small irrigation schemes ... | 12·8 | 0·4 | 1·6 | 1·6 | 2·5 | 2·6 | 3·8 | 12·1 | 0·3 |
| Total ... | 155·2 | 2·5 | 5·7 | 4·7 | 9·2 | 13·1 | 16·7 | 49·4 | 103·3 |
| III. POWER : | | | | | | | | | |
| 2 small electricity schemes ... | 2·9 | ... | 0·1 | 1·5 | 1·0 | 0·3 | ... | 2·9 | ... |
| Grand Total ... | 163·7 | 2·5 | 6·1 | 7·2 | 12·0 | 14·5 | 18·1 | 57·9 | 103·3 |

### TABLE 10

*Expected results from water and power resources development* 1955—60.

| Name of scheme | Period of execution | | Results expected during the Plan period | | | | |
|---|---|---|---|---|---|---|---|
| | Commencement | Completion | Area irrigated (a) New | Area irrigated (b) Old | Area reclaimed | Area drained | Power |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| | | | (Thousand acres) | | | | (kw) |
| **I. GENERAL INVESTIGATION :** | | | | | | | |
| Comprehensive investigation | 1956 | 1960 | ... | ... | ... | ... | ... |
| Investigation of : | | | | | | | |
| (1) Aghor Hingol multi-purpose project. | 1958 | 1960 | ... | ... | ... | ... | ... |
| (2) Gharok multipurpose project | 1956 | 1957 | ... | ... | ... | ... | ... |
| Investigation of 2 irrigation schemes | 1957 | 1960 | ... | ... | ... | ... | ... |
| **II. IRRIGATION :** | | | | | | | |
| Flood irrigation schemes | 1956 | In progress | 40 | ... | ... | ... | ... |
| Canals from Gudu | 1956 | Do. | 10 | ... | ... | ... | ... |
| Ground water development | 1956 | Do. | 11 | 11 | ... | ... | ... |
| Dasht river project | 1957 | Do. | 10 | ... | ... | ... | ... |
| Lining irrigation canals | 1956 | Do. | 3 | ... | ... | ... | ... |
| Bolan dam project | 1953 | 1956 | 24 | 10 | ... | ... | ... |
| 15 small irrigation schemes | 1955 | In progress | 40 | 27 | ... | ... | ... |
| Total | | | 138 | 48 | ... | ... | ... |
| **III. POWER :** | | | | | | | |
| 2 small electricity schemes | 1956 | 1959 | ... | ... | ... | ... | 1,225 |
| Grand Total | | | 138 | 48 | ... | ... | 1,225 |

(*a*) New irrigation.

(*b*) Improvement of irrigation facilities.

161. The extreme paucity in this region of basic data, essential for projecting all water resources developments, is demonstrated by the number of schemes which have been abandoned, or have ended in failure in the past. Much more detailed and precise knowledge of the hydrologic, geological and other conditions of the region is needed to avoid the recurrence of such mistakes. The first requirements are a comprehensive

survey of the water resources, topography, soils, land use, and the economic needs to be served by water and power resources development, and a logical and consistent general plan for the purpose, for which a sum of Rs. 3 million has been provided in the Plan.

162. The data on which the schemes submitted in the past had been based, were inadequate to enable the projects to be prepared in a satisfactory manner. In order to avoid this in the future, and to build up a reserve of complete schemes, a provision of Rs. 2·56 million has been included in the Plan, for detailed investigations of such specific schemes as show promise of feasibility. In a number of small schemes, investigations conducted hitherto indicate a reasonable chance of successful development. It is expected that the surveys and the preparation of the designs and plans will have advanced sufficiently to enable construction to be started on selected projects during 1955—60. Larger projects require several years of exploratory work to complete the geological and engineering surveys, the designs of structures and the studies of economic feasibility, before actual execution can start. While the construction of the smaller projects is in progress, it is intended that exploratory work on two large projects, the Aghor Hingol and Garok should be undertaken during the Plan period, so that their eventual construction is not unduly delayed.

163. The programme provides a sum of Rs. 9·62 millions for the exploration and development of ground water resources. Not till the investigations have been completed, can firm conclusions be drawn regarding the areas likely to offer good promise of development. Because of the large initial capital outlay involved, the high running costs, the lack of power at reasonable rates, the high costs of imported fuel, and the limitations of quality and quantity of water, the economics of tube-well pumping will have to be worked out very carefully, before embarking on any large-scale programme of groundwater development. The possibility of the artificial recharge of groundwater resources, at times when the surface supplies are plentiful, should also be investigated. The Plan provides for three experimental schemes for the purpose. To minimise the losses in the conveyance and use of water, a provision of Rs. 1·27 million has been made in the Plan for an effective start on a programme of lining the least efficient sections of the existing channels.

164. The programme will require continuing appraisal, as specific plans are developed, and the inter-relationship between schemes becomes clarified. Most certainly would it require to be reviewed at the start of each year in which new construction is proposed. Adjustments may be necessary from time to time, as investigations may disclose the practicability of some schemes not included in the programme, and the impracticability of others, which had been included for construction in the later years of the Plan.

165. Had it not been for the serious physical and technical considerations limiting the size of the programme, the economic needs of this undeveloped area would have justified a larger programme than we now propose. The first limiting factor is the lack of basic data, and the non-existence of projects that could be undertaken immediately with a reasonable assurance of success. The second is the absence of technical staff required for planning and supervising construction. Third, some time would necessarily be needed for recruiting, organising and training the staff. And fourthly, the total size of the programme has to be limited by the rate at which effective colonisation of the lands, proposed to be irrigated, can reasonably be expected to proceed. The programme outlined therefore represents the most optimistic rate of development that could be achieved under the circumstances. Its actual progress will, however, depend upon the completion of the necessary organisational arrangements, and the speed with which technical personnel and machinery can be made available. The programme further assumes that the requisite changes in the taxation structure, the land tenure system, and the existing water rights are effected in time to ensure its success.

166. The addition of 186,000 acres of irrigated land may be compared with the 400,000 or more acres which would need to be added by 1960 to provide food and clothing to the then population of the Region. But the existing programme is limited by available technical resources.

167. The power load for 1955 has been estimated at 2,400 kw., against a total installed capacity of 2,800 kw., which represents a dependable capacity of 2,250 kw The deficiency is about 6 per cent and is likely to rise gradually to about 20 per cent in 1957, mostly in the Quetta-Pishin area, but will be more than accommodated by the installation of 1,000 kw. at Pishin in 1957, and of another 1,000 kw. in 1958, by private industrial enterprise (Quetta textile mills). No deficiency in dependable capacity is likely to recur till 1961, and it would be advisable to plan additional installations before that date. A number of agricultural and industrial development schemes have been included in the Plan, and on their proving successful, others may be taken in hand ; in that case there will be a good case for building a steam station in the Quetta-Pishin area after 1960.

# SECTION C

# INDUSTRY, FUELS AND MINERALS

## Chapter 19

# FUELS AND MINERALS

1. The development of modern industry, agriculture, transport and construction, such as has been taking place in this country, requires a rapid increase in supplies of fuels and mineral raw materials. At the time of partition nearly all the known sources of high grade coal and iron ore, bauxite and most other metallic minerals in the sub-continent were left in India. Known resources of fuels and minerals in Pakistan were negligible. Since then, there has been a considerable increase in the production of fuels and minerals within the country. There also has been some intensification of efforts to find additional deposits in large areas of the country which have never been thoroughly explored. The increase in domestic mining and production of certain fuels and minerals is shown in Table 1.

TABLE 1

*Output of selected fuels and minerals in Pakistan*, 1948—1954

| Item | Unit | 1948 | 1949 | 1950 | 1951 | 1952 | 1953 | 1954 |
|---|---|---|---|---|---|---|---|---|
| 1. Crude petroleum ... | Million imperial gallons | 17 | 33 | 45 | 47 | 55 | 62 | 68 |
| 2. Petroleum products : | | | | | | | | |
| (*a*) Diesel oil ... | „ | 1·34 | 1·33 | 2·30 | 2·82 | 5·85 | 9·06 | 12·28 |
| (*b*) Motor spirit ... | „ | 2·21* | 6·11 | 10·42 | 11·16 | 15·10 | 16·95 | 19·08 |
| (*c*) Kerosene oil ... | „ | 0·30* | 0·99 | 2·06 | 1·83 | 2·32 | 2·39 | 2·83 |
| (*d*) Furnace oil ... | „ | 6·52 | 15·19 | 24·50 | 25·19 | 23·75 | 27·67 | 25·85 |
| 3. Coal ... ... | Thousand tons | 241 | 332 | 437 | 506 | 599 | 584 | 554 |
| 4. Chromite ... ... | „ | 18 | 17 | 18 | 18 | 17 | 23 | 22 |
| 5. Limestone ... ... | „ | 347 | 279 | 303 | 344 | 672 | 879 | 822 |

*Data relates to 9 months (April 1948 to December 1948).

*Source* : Ministry of Finance : Explanatory Memorandum for 1956-57.

2. Domestic production of fuels and minerals has not been enough to satisfy the demand. Many important minerals, including iron ore, have not been produced at all. Only about 33 per cent of coal consumption and 20 per cent of consumption of petroleum products in 1954 came from indigenous sources, the balance of the country's requirements

being imported on the scale shown in Table 2. On the other hand, the country has been nearly self-sufficient in salt, ceramic clay, limestone and gypsum. Chromite has been exported, but very few other minerals, and no fuels at all. Consequently very heavy net expenditures of foreign exchange have been made to import coal, petroleum products, metals, chemicals and many other needed materials not mined or produced in the country.

TABLE 2

*Imports of fuels into Pakistan* 1948—1954

| Item | Unit | 1948 | 1949 | 1950* | 1951* | 1952 | 1953 | 1954 |
|---|---|---|---|---|---|---|---|---|
| 1. Petroleum products | Million imperial gallons | | | | | | | |
| (*a*) Diesel oil ... | „ | Not available | Not available | 6·45 | 10·16 | 30·27 | 33·64 | 40·90 |
| (*b*) Motor spirit ... | „ | „ | „ | 5·34 | 11·13 | 22·85 | 13·89 | 24·11 |
| (*c*) Kerosene oil ... | „ | „ | „ | 18·31 | 18·52 | 30·53 | 54·83 | 41·87 |
| (*d*) Furnace oil ... | „ | „ | „ | 33·03 | 48·08 | 129·27 | 123·08 | 115·05 |
| 2. Coal ... ... | '000' tons | 972 | 1,454 | 1,009 | 1,366 | 1,667 | 1,192 | 1,101 |

*Figures are for six months, *i.e.*, July—December.

*Source* : Central Statistical Office.

Imports of fuels and raw materials cost us roughly Rs. 319 million in 1954, of which Rs. 75 million was spent for petroleum products and Rs. 34 million for coal. This is a sizable part of the import bill. It is clearly of great importance to find and develop larger domestic sources of these materials.

3. It is necessary to plan on the basis of a continued steady rise in fuel and mineral requirements as the development of the country proceeds. The discovery of the very large pool of natural gas at Sui will replace sizable quantities of fuel which otherwise have had to be imported. By 1960, the country should be obtaining from natural gas the heat equivalent of more than 200 million gallons of imported fuel oil. Despite this, the demand for petroleum products is expected to rise so rapidly as to require larger imports in 1960 than in 1954.

4. The major objectives of a development programme for fuels and minerals are very clear: first, to push ahead rapidly with the exploration of subsoil resources, in order to find out exactly what exists and how it can be exploited; second, to assure the rapid development of all economically useful reserves, in order to supply as much as possible from indigenous resources and to maximise foreign exchange earnings through exports.

## EXPLORATION, PROSPECTING AND DEVELOPMENT

5. Not much is known about the mineral deposits in this country. Only about 28 per cent of West Pakistan and a very small part of East Pakistan has been covered satisfactorily by geological mapping. The first essential for a sound fuels and minerals programme is to expand greatly the work of exploration. This requires an immediate and large increase in the work of the Pakistan Geological Survey.

6. The Geological Survey has a sound tradition of professional work, and a well-trained staff. Its current operations, however, need to be greatly expanded. The Survey should be required to prepare and execute well-defined programmes of work, intended to explore rapidly the most promising areas and to prospect for the most important minerals. For example, the Survey should concentrate for the next few years on (a) the unexplored mountainous portions of West Pakistan; (b) important minerals needed for the development programme, such as ores of non-ferrous and metals; coal and lignite, oil and gas; potassium salts and phosphates; and high grade clays; (c) ores of metals which have promising export markets, such as tungsten, titanium, antimony, cobalt, columbium, berylium and monazite.

7. To carry out such programmes, the Survey will need a considerably larger staff and a good deal of additional equipment for both laboratory and field work. The Government should be prepared to give the Survey much stronger financial support than in the past, in view of the great significance of geological exploration to the country's development. A very substantial contribution to geological knowledge has been made in the last three years by the Canadian Government, which has financed an aerial survey of most of West Pakistan (south of the high mountains), a ground geological reconnaissance of the former Baluchistan and Baluchistan States Union, and reconnaissance soils surveys of considerable portions of the Indus plain. It will take many years to complete the work of finding out what quantities and qualities of mineral resources lie within the country.

**Prospecting and development**

8. Geological mapping yields information on the geological structure of different areas and on the general types and quantities of mineral resources. The next steps are detailed prospecting to map much more precisely the shape and size of the deposits, estimating the cost of recovery, and, where good results can be expected, commercial exploitation. In this country, as in most other countries, it is generally considered desirable that private companies should be encouraged, so far as possible, to provide the capital and take the risks of prospecting and developing sources of fuels and minerals, under standards and safeguards laid down by the Government to protect the public interest. Where special circumstances exist, such as the needs of national defence, or where private companies perform poorly, public enterprise may be preferred.

9. To obtain good results from private enterprise in fuel and mining operations, the Government needs a clear policy, offering strong incentives for rapid and thorough prospecting, and providing for prompt exploitation of valuable deposits under appropriate safeguards so as to prevent waste or monopolistic practices. Current policy needs improvement. The Central Government regulates the granting, renewal, and revocation of prospecting licences and mining leases, operating and safety conditions, and other aspects of mining. These regulations are, however, often out-of-date, and their administration has not always been prompt and effective.

10. Under present arrangements, information on possible deposits is often not published promptly and fully, with the result that businessmen do not know what opportunities may exist. The system of "certificates of approval" and "prospecting leases" is cumbersome, and frequently results on the one hand in superficial and wasteful exploitation of known deposits, and on the other hand in leaving promising sites untouched. Private concerns are often faced with uncertainty and long delays in obtaining the necessary permits and licences to start work. The standards necessary in the public interest should be clearly laid down. The administration of the mining laws is split among several separate departments and this hampers the development of uniform and consistent policies

11. There is general agreement among those concerned with mining laws and regulations about the deficiencies of the present situation and how to set them right. Two major steps are needed: first, the establishment of a single agency responsible for the rapid development of fuel and mineral resources, and second, a thorough overhaul of the mining laws and regulations.

12. The Central Government has already decided to take the first step, by establishing a Bureau of Mines, to which would be transferred many of the existing controls over mining which are now in separate departments. The Bureau of Mines will be responsible for issuing claims, licences and leases; for collecting and publishing information on all phases of the mining industry; for economic and technical studies and advice; for stimulating and assisting the progress and efficiency of the mining industry; for encouraging the participation of foreign capital in fuel and mineral development; for expediting the import and production of necessary mechanical equipment and spare parts; and for other activities designed to make the best use of the country's fuel and mineral resources for development. We believe that the establishment of a Bureau of Mines is urgently required and should not be delayed.

13. The second step, overhaul of the present mining laws and regulations, is equally urgent. If the Bureau of Mines is established immediately, its first task should be to study and recommend a modern, simple, and effective system for government licensing for private mining operations. There are excellent models to be found—for example in France, as well as in the States of New York, Utah and California in the U. S. A. Competent technical advice could easily be obtained through one of the foreign aid agencies. If, however, the establishment of a Bureau of Mines is delayed for a few months, we recommend that a special group should be put to work on this task at once, as it is a necessary preliminary step towards the general improvement of the mining industry.

### Mining personnel

14. Until recently there has been no organised training for professional and technical workers in mining industries. In October, 1954 however, the School of Mines, Lahore College of Engineering and Technology started its first class. The first batch of mining engineers will graduate from this school in 1959 or 1960. It is estimated that the country will need upwards of 50 mining engineers to carry out the mineral development programme we have recommended. It is clear that for some time the mining industry will have to depend in large part on foreign experts, on Pakistanis trained abroad, and on geologists or civil engineers trained in mining techniques through a combination of training on the job and short experience in foreign mining schools and installations. As in other fields of engineering, it is especially important that young mining engineers should gain a thorough appreciation of manual labour and be able to live amid the discomforts and hard conditions of field work.

15. Training of professional specialists is not enough. There must also be trained foremen (*sirdars*) and other supervisors for various types of mining operations. In coal mining, there are a number of competent managers and foremen, trained in Indian mines, where the seams are wide in contrast to those prevailing in this country, which are narrow and irregular. A considerably larger number will be needed as coal production expands. It would be desirable to send a number of selected managers and foremen abroad for training in North Africa or other areas with narrow coal seams. On their return, some of these men should be selected as instructors for a school designed to improve the number and quality of supervisors in the mines. This school, which might be attached to the School of Mines at Lahore, should be designed to train supervisors and junior technical staff for other types of mining operations as well as coal.

16. Except for the workers in rock salt mines and oil and gas wells, semi-skilled and unskilled mining labour does not exist in this country. Instead, the typical miner is a part-time worker—a farmer, a herdsman, or a nomad—recruited under a contract labour system giving him no relationship with the time-owner or manager except through the labour contractor. This is a very unsatisfactory system from the standpoint of both the miner and the manager. It leads to much exploitation of workers and an irregular, inefficient labour force. Some improvement is noticeable wherever quarters (no matter how primitive and crowded) are available at the mine site or transport to the mine is provided; in such cases something resembling a regular labour force begins to emerge. Even in such cases there are no organised training programmes, and the productivity per man is very low.

17. Training is one of the several steps needed to improve the mining labour force. It is primarily the responsibility of the management, whether public or private, to see that the workers are better trained and better paid, to employ them directly, rather than through contractors, and to improve their conditions of housing, health and safety. The government agencies concerned with labour, health and housing should all play their part in improving conditions for mine workers. The main responsibility of the Government should be through the Bureau of Mines. The Bureau should study the whole problem of assuring a sufficient number of well-trained persons for the mining industry—managers, engineers, skilled and unskilled workers—and should plan and promote the necessary action, by both government and private agencies, to meet these requirements. For this, the Bureau will need to have one or two specially trained people, who can devote their full time to the problems of mining personnel.

## DEVELOPMENT PROGRAMMES FOR SPECIFIC COMMODITIES

### Oil and gas.

18. A good deal of the territory in both the East and West Wings is of geological formations which show some prospects of containing oil and gas deposits. Exploratory work and drilling had gone on for many years, with positive results only on the relatively small fields near Rawalpindi, until large deposits of natural gas where found at Sui in 1952. Since then there has been considerable interest in oil and gas prospecting in the country, and several of the large international oil companies show willingness to prospect. Arrangements have been made with certain companies, under which the Government will share part of the costs and will receive, if oil or gas is found, a corresponding share of the profits, in addition to a royalty. Similar arrangements may be made with other companies. There will probably be a substantial amount of prospecting for oil and gas during the Plan period. It is not possible to estimate exactly how much will be invested in oil and gas prospecting, but as a rough guess we have included in the Plan some 420 million rupees, of which 56 million would be public funds. It is to be hoped that valuable finds will result during the next five years, but plans cannot be made on speculation; only the reserves already proved are a sure basis.

19. The Punjab oil fields were developed some years ago, and a refinery was constructed at Rawalpindi. At present, a pipe line has been laid from the fields to the refinery in order to capture and use natural gas, which was being wasted. No other sizeable new investment is expected in connection with the present producing wells. A small but steady increase in output during the Plan period can be assumed.

20. The Sui gas reserves are a very large addition to fuel resources. The latest estimate of proven reserves made in October, 1955, is some four trillion cubic feet, roughly equivalent in heating value to 143 million tons of coal. By the end of 1955, gas was being delivered through a main transmission line from Sui to Karachi. The Plan provides for

the construction of a pipe line from Sui to Lahore. The use of Sui gas will have a very large impact on the country's heat and energy supply, on industrial costs, and on the balance of international payments. The policies relating to the gas should be designed to reap the maximum benefit for the country. Hitherto, there has been no definite public policy on the rate of exploiting the gas, its proposed uses, and the prices at which it should be made available; this is a serious handicap, in view of the importance of the gas to the country. Our own conclusions on the allocation and use of natural gas are reflected in the Chapter on Industry; we have not, however, attempted a comprehensive study of these matters. We strongly recommend that the Bureau of Mines (or, if the Bureau's establishment is delayed, a specially assigned group) should be directed as a matter of urgency to study and submit proposals for government policy on natural gas. The absence of such a policy is already causing uncertainty leading to waste of valuable resources.

21. The Punjab oil fields and the Sui gas fields are the country's only proven sources of oil and gas. In the spring of 1955, gas was struck in an exploratory well being drilled near Chattak in East Pakistan. Unfortunately a fire started, burnt the equipment, and ruined the well. It will be necessary to drill another well; but it will be a matter of months before the quality and quantity of the gas can be ascertained.

### Coal and lignite.

22. Coal is found in several places in West Pakistan, and lignite in East Pakistan. It is not possible to estimate the extent of the resources with any accuracy, because of lack of detailed mapping and prospecting. There are known to be sizeable deposits of coal at Makerwal in the former Punjab, and in the Sharig and Sor Ranges in the former Baluchistan and the former Baluchistan States Union, with further possibilities either at these sites or others, such as Jhimpir in the former Sind. One of the major elements in any development programme for coal is a systematic and persistent survey of deposits. It should be the duty of the Bureau of Mines, aided by the Geological Survey, to plan and execute this survey.

23. The quality of the coals found in the country is not very high; the coals cannot be used for coking because they contain much sulphur and ash. The average heating value is about 10,000 BTU per pound, as compared with 12,000 BTU per pound of the coal usually imported from India. Experience has shown that indigenous coal is quite satisfactory for use in boiler plants, if suitable firing arrangements are made. The soda-ash plant at Khewra, started in 1937, has always used it without difficulty; beginning in late 1954, the North Western Railway too has been using it on the Quetta-Zahidan and Quetta-Chaman runs, and is ready to use much more of it.

24. There seems to be no doubt that a combination of habit, prejudice, and lack of clear-cut national policy has resulted in recent years in large imports of coal, at considerable costs in foreign exchange, to fulfil needs which could have been fulfilled economically by indigenous coal. We recommend that the Government declare their policy as being one of favouring the use of indigenous coal, wherever economic, and of supporting its development and conservation. To this end, the functions of the Coal Commissioner's Office or its successor in the Bureau of Mines, should be defined thus: first, to assist in increasing the output and improving the quality of indigenous coal; second, to encourage its increasing use in place of imports; and third, to authorise the importation of coal only to meet solid fuel requirements which cannot economically be met from indigenous supplies. This programme should be based on careful economic analyses of the relative costs and efficiencies of different types of local and imported coals for different uses, and of different types of coal in comparison with oil and gas as sources of heat for different purposes. This should be one of the first tasks of the proposed economic survey unit of the Bureau of Mines.

25. The mining equipment and methods used in most of the coal mines are extremely poor, even primitive. Steam or other mechanical shovels, drilling, undercutting, and material handling equipment are virtually unknown. Pumps, fans and electricity are rarely found. Explosives are seldom used. Even in relatively good and professionally managed mines, coal is moved and hoisted over steep grades in bags or baskets carried by men, without the aid even of ladders or steps. Donkeys are the standard substitute for conveyor belts or narrow gauge mine tubs. The limited mechanical equipment employed is usually obsolete, worn out, or unsafe. In these circumstances it is remarkable that more than half a million tons of coal have been raised annually in recent years.

26. The reasons for the lack of investment in better machinery and equipment are several. Mining equipment is not manufactured in the country and import licences have been granted only for small amounts and after much delay, making it extremely difficult for mining companies to obtain essential equipment, supplies, spare parts, and replacements. Many mines are small and their seams are narrow and short, making mechanical equipment expensive and difficult to use. Many of the more highly mechanised types of equipment which have been developed in Europe and North America would not be economical in this country with its different ratio between capital and labour costs.

27. Over and above these reasons, and probably of greater importance, are certain aspects of the history of the coal industry. It has always suffered from market instability. Since the turn of the century, there have been three or four periods of rising prices and rapid increases in output, followed by periods of low prices when most of the mines were closed down. Mine-owners have often followed the practice of making profits when they could, and re-investing little in the development of new capacity or the improvement of equipment. They have tended to regard the mines not as enterprises to be improved and developed over a long period of years, but rather as sources of occasional profits to be obtained at the lowest possible cost and with the minimum of investment. This is not a sound foundation for the long-term development of the coal industry. With a market larger than can be supplied, stretching far into the future, those who work the coal mines must establish long-term policies for their operation, maintenance and development.

28. This raises the question of the organisation of the industry. The small size and inadequate resources of many of the colliery companies have undoubtedly contributed to the poor condition of the mines. Although opportunities should be preserved for small entrepreneurs in this field, many of the existing units must be consolidated into larger ones which can be developed and operated more economically and efficiently. One such step has already been taken, by giving to the Pakistan Industrial Development Corporation responsibility for developing as a working unit several neighbouring mines at Makerwal, from which coal will be mined for a cement factory and a fertiliser plant. A similar arrangement is being considered by the railways; they are contemplating the acquisition of a group of adjacent mines to develop them into an efficient, larger-scale source of locomotive fuel. The same objective could be achieved by merging existing mines under private ownership. The Government should encourage private owners of the larger adjoining or related mines to merge them into strong companies, large enough to engage professional management and to support a consistent, long-range programme of investment in machinery and equipment. In such circumstances, it would be appropriate for the Government to make loans for the rehabilitation and development of the mines.

29. In conjunction with the Coal Commissioner and representatives of leading consumers, we have considered what target should be set for expanding the production and use of indigenous coal during the Plan period. We believe that an additional 500,000 tons could be used readily: about 300,000 tons in existing uses, including 100,000 tons on the railways alone in place of imported coal, and about 200,000 tons in new uses, including 150,000 tons in the cement and fertiliser factories at Daudkhel. Thus the major problem is to enlarge production to this extent. The investment required would be about 19 million

rupees, which has been included in the Plan. At present the only reasonably complete scheme for expanding coal output is the Pakistan Industrial Development Corporation scheme for the Makerwal collieries. For the rest, schemes must be drawn up, by the Government or by private companies, before any funds could be usefully spent; the Coal Division of the Bureau of Mines should stimulate and assist in the preparation of such schemes as a matter of high priority. We have included all the cost under public sector expenditure, but hope that some of the development will be undertaken by private enterprise.

30. East Pakistan has no proven coal deposits. There are, however, sizeable deposits of lignite, which have been partially explored and tested in recent years, with encouraging results. The lignite is found in easily mined seams only a few feet below the surface, although they could probably not be worked during the rainy season. The water content is high, but air-drying makes it possible to burn the lignite satisfactorily in combination with coal, and further processing might give a fuel having even better characteristics. Because of the present complete dependence of East Pakistan on imported coal, it is important that the possibility of mining and using lignite on a sizeable scale should be fully investigated by means of a programme including:

(*a*) Intensified prospecting and survey of deposits;
(*b*) Determining appropriate mining techniques;
(*c*) Large-scale testing of samples to determine the best uses for the fuel; and
(*d*) Preparing and executing a phased programme for the development and use of lignite.

The Bureau of Mines and the East Pakistan Government should both participate in these four steps and jointly work out the detailed schemes required. We have received no scheme covering lignite, but have included in the Plan funds to cover the first three steps listed above. When a scheme for actual development is ready, the additional funds needed should be considered.

**Iron ore.**

31. Until recent years no commercially exploitable deposits of iron ore were known in this country. This situation has now changed greatly. Substantial reserves of medium quality ore—hematite, containing on an average 34 per cent iron—have been found near Kalabagh. Although the size of these reserves is till under investigation, there would probably be enough ore to support a medium-single steel plant. Some much higher quality ore—magnetite, containing about 62 per cent iron—is reported to have been discovered in Chitral. Even though the area is relatively inaccessible, the ore is of such high quality that it should be rapidly surveyed and means of exploiting it investigated. Finally, some relatively low-grade ore has been found near Jhimpir, 74 miles from Karachi near coal deposits. This ore should also be surveyed rapidly, and tests made of the techniques and costs of smelting it.

**Chromite.**

32. About 22,000 tons of chromite are produced annually, all from the Hindubagh area, and all exported, principally to the United States. It may be possible to raise production and exports by 40 per cent during the Plan period. One major difficulty is the variable quality of the ore deposits—ranging from 30 to 57 per cent chromium oxide. To be exported at favourable prices, the ore must average 48 per cent chromium oxide. This calls for the blending of higher with lower grade ores and the present practice of each operator doing this separately is wasteful. What is needed is an export agency which could pool ores from different operators and obtain the largest possible quantities of suitable blends. The Government should sponsor such an export agency, either as a producers' co-operative or, if necessary, as a public or semi-public organisation. Recently, higher grade chromite has been discoverd in Karachi; this should be surveyed as a matter of

high priority. In addition, a detailed scheme should be sponsored for processing some of the ore into sodium dichromate, which sells for a considerably higher price than ore. This scheme would probably show an attractive return on investment and prove a profitable undertaking.

**Gypsum.**

33. There are large deposits of gypsum in West Pakistan. So far only about 31,000 tons is used annually in making cement. With the increasing production of cement during the Plan period, this requirement will nearly double and the fertiliser plant at Daudkhel will need about 80,000 tons of gypsum annually. A gypsum industry big enough to meet these larger needs might reach a level of efficiency in quarrying and transport which would enable it to enter the export markets. The possibility should be investigated by the Bureau of Mines.

**Sulphur.**

34. Requirements for sulphur in the country are at present fairly modest—about 6,000 tons annually; but they are certain to multiply in the next few years. Sulphur and sulphuric acid will be required for bleaching and chemical reaction—in such fields as rubber, insecticide, fertiliser, rayon and paper production. There are several sources of sulphur. High grade sands (40 to 60 per cent sulphur) exist in Baluchistan, and a small refinery has been established in Quetta to process them. Another source is coal; indigenous coals contain usually a high percentage of sulphur. Part of the process planned for the fertiliser plant at Daudkhel is to extract 1,500 tons of sulphur annually from the Makerwal coal and to use it for making fertilisers. Another potentially very rich source of sulphur is Sui gas; this sulphur will be extracted from the gas in the purification plant being constructed at the well-head, and it can be recovered for sale if that proves to be economically desirable. Finally, because gypsum can be used as a source of sulphur, its technological and economic possibilities should be explored as rapidly as its supply increases.

**Antimony.**

35. Antimony deposits in Chitral were worked some years ago, and then abandoned. Now again systematic prospecting and development work is under way, which should permit some exports during the Plan period.

**Barytes.**

36. Finely-ground barytes are used as a lubricant in oil drilling and in paint manufacture. At present all the barytes used in the country are imported, though good quality deposits are reported in the former Sind and Baluchistan States Union areas. The Bureau of Mines should encourage the production of barytes in the country through private enterprise.

**Salt.**

37. There are deposits of rock salt of excellent quality in West Pakistan, and its sea cosat offers particularly favourable conditions for the extraction of salt from sea water by solar evaporation. East Pakistan has no rock salt deposits, and extraction of salt from sea water is carried on under much less favourable conditions. The mining of rock salt and salt extraction from salt lakes are government monopolies. Extraction of salt from sea-water is carried on as a private business under government supervision. The country has considerable natural advantages in salt production, and should become a net exporter of salt. In recent years, however, the country has actually been an importer. Since the devaluation of the rupee, it should be possible to export considerable quantities of salt to countries like Japan and Canada. The government agencies concerned, particularly the Ministries of Finance and Commerce, should urgently review these possibilities.

**Limestone and clay in East Pakistan.**

38. East Pakistan in general is very short of stone. The only cement factory in East Pakistan, at Chattak, uses limestone imported from a quarry in India, just across the border. The Chandraghona paper mills also use limestone imported from India. Limestone, which used to be brought to Chattak for making quicklime in cottage industry operations, has been cut off by the new border. Even ordinary stone for making concrete or roads is extremely scarce. This creates a very special problem for the Geological Survey in East Pakistan and for the Provincial Government. It is important that the Province be surveyed rapidly —particularly the hilly sections—in search of limestone, construction rock and deposits of gravel. Until such deposits are found, the East Pakistan Government should explore the possibilities of developing sources in adjacent areas. A special contract should probably be made, to bring limestone to Chattak for cottage industry use as well as for the cement factory. The question of obtaining limestone from Ramree Island off the Burma coast should also be emplored.

39. The most abundant mineral resource in East Pakistan is clay, which exists in many different qualities. Only ordinary loams and brick clays are used at present to any great extent. This represents a substantial unutilised resource, which should be developed. The equipping of the East Pakistan Glass and Ceramics Institute in Dacca should be completed without delay, and the Institute requested to conduct studies on the use of materials found in the Province. The Geological Survey should also concentrate its investigations on clay.

## ESTIMATED COSTS

40. The development costs summarised here are for major changes or expansions. We do not include the normal development work which is—or should be—a part of everyday mining operations, such as the exploratory work to identify new workings at a given mine site and prepare them for mining. The cost of natural gas pipelines is included in the Chapter on Industries. Table 3 below summarises the estimated cost of developing fuel and mineral supplies on the scale proposed during the Plan period.

### TABLE 3

*Estimated cost of development programme for fuel and minerals,* 1955-60

(Million rupees)

| Purpose | Public Sector | Private Sector | Total |
|---|---|---|---|
| 1. Expanding Geological Survey ... ... ... ... ... | 5·6 | ... | 5·6 |
| 2. Establishing Bureau of Mines ... ... ... ... ... | ·5 | ... | ·5 |
| 3. Special high-priority investigations : | | | |
| Chitral (magnetite, antimony, etc.) ... ... ... ... | 8·4 | 2·7 | 11·1 |
| Jhimpir (Coal and iron ore) ... ... ... ... ... | ·2 | ... | ·2 |
| East Pakistan lignite ... ... ... ... ... | ·6 | ... | ·6 |
| 4. Prospecting for oil and gas ... ... ... ... ... | 55·8 | 361·7 | 417·5 |
| 5. Expansion of coal production ... ... ... ... ... | 19·3 | ... | 19·3 |
| 6. Expansion of chromite production ... ... ... ... | ... | ·6 | ·6 |
| 7. Expansion of gypsum production (PIDC) ... ... ... ... | ·4 | ... | ·4 |
| 8. Processing of sulphur ore ... ... ... ... ... | ·4 | ... | ·4 |
| 6 Expansion of salt production (East Pakistan) ... ... ... | ·8 | ... | ·8 |
| | 92·0 | 365·0 | 457·0 |

## Chapter 20

# INDUSTRIAL DEVELOPMENT

1. Industrialisation is perhaps the most significant process in economic development. The purpose of economic development, in the circumstances of the country, is to execute and complete as rapidly as possible the transition from feudalism to industrialism. The community has to be lifted from a low to a high level of technique ; the method is predominantly one of industrialisation. The country needs to make the fullest use of its resources ; the processes of production need to be revolutionised to produce better and better goods in ever-increasing volume both for investment and consumption. The occupational structure of the country has to be strengthened and diversified to provide employment at increasingly higher levels of productivity.

2. Industry and agriculture support and complement each other. Special emphasis on agriculture is necessary in the Plan period to prevent the danger of imbalance between agriculture on the one side and an expanding industrial sector on the other ; to provide food for the increasing urban population and industrial labour ; to ensure export earnings, and to increase the income of rural and agricultural workers who constitute the majority of the population and are therefore the largest potential buyers of industrial products. Agriculture needs the drive and enterprise which characterise industry. Agricultural development is vital, but there is no conflict between agriculture and industry ; there need be no slackening of the process of industrialisation. Industry is second, but a very close second, to agriculture in priority. Whatever the shifts in emphasis from time to time, industrialisation must always remain as the main ultimate objective.

3. The progress of industrialisation in recent years has been spectacular. The rate of progress recorded would compare favourably with the highest achieved in the history of industrialisation in any country. The economy which was exclusively agricultural at partition is rapidly acquiring a semi-industrial character. The country then was a producer of food and raw materials and an importer of manufactured goods, but is now producing more and more of the manufactured goods needed for consumption and for increasing export earnings. Yet this is no more than a beginning of the process of industrialisation. A country which has a leeway of centuries to make up cannot think of rest periods. We conceive of our industrial programme in the Plan period as one, first, of consolidation which will include improvement, modernisation and balancing of existing plants, and, second, of a further advance on a broad front, both of them with the main objects of (*a*) improvement of the people's welfare, (*b*) improvement of the foreign exchange position, and (*c*) supplying the materials needed by the country for implementing the Plan. Consolidation and development must proceed simultaneously ; the very idea of a breathing time to look back, take stock, settle down comfortably, and then to think of the next stage is inconsistant with the speed and tempo of the atomic age, and wholly repugnant to the philosophy of dynamic life which has given birth to Pakistan.

4. The scientific and industrial revolution which has transformed the techniques and levels of production in advanced countries presents large opportunities for promoting the welfare of the people. The country can draw upon the results of scientific and technological advances made by other countries. These opportunities must be seized as rapidly as available knowledge and resources permit. Industrial development is based upon the application of scientific technology. The country must select and apply the scientific discoveries of the past and also keep abreast of current progress. The technology needed is that which will permit easier, cheaper, and more abundant production. To obtain such technical knowledge and adapt it for use requires a special kind of research which the country has yet to establish and promote.

5. Industrialisation means a social as well as an economic revolution. The migration of workers from agriculture to industry brings new urban concentrations and gives rise to large scale problems of housing, sanitation, family disruption, and unaccustomed ways of life. The use of factory production inevitably leads to revolutionary changes in the ways in which people live, work, and think. It has caused social misery, squalor, and distress in other countries in the early stages of industrial development. It produces profound changes in social attitudes and relationships, and generates the need of new institutions. Enormous problems of human adjustment and of social and economic policy fill the path of industrialisation with hazards of all kinds through which the country must chart its course wisely, fully using the experience of others. To accomplish successfully the rapid change which is taking place and will continue to take place for many years to come will call for great forethought, careful planning, and delicate handling by government officials and private citizens, in a spirit of devotion to the country's future.

6. We mention briefly here some of the main problems with which the country has to contend in promoting industrial development. The most prominent among them is that of limited availabilities of foreign exchange. This is frequently a feature of an under-developed country engaged on a dynamic programme of economic development. A backward economy subsisting on an undeveloped base of agriculture and small-scale industries usually has no problems of foreign exchange. Its requirements of consumer goods are small and simple, and can be satisfied from the exchange earned by exports of food and raw materials. This easy position is liable to change to one of acute scarcity of foreign exchange when the country begins to import capital goods for industrialisation, and the people begin to acquire new tastes and develop new requirements, such as those for education, health, and better houses. Pakistan has entered this critical stage. The solution lies in a diversified and ambitious but balanced and realistic programme of industrial development, combined with larger agricultural production. The foreign exchange problem will be solved by increasing production for export, for replacement of imports, and for meeting new requirements of the economy from internal sources. A slackening of industrial development which must inevitably be accomplished by a slow rate of general development is no solution, because it would seriously accentuate social and economic problems. Attempts to maintain a high level of development in other than industrial fields will intensify, not relieve, the foreign exchange situation.

7. As the industrial development of the country proceeds, more and more machinery and equipment will be purchased and installed. This creates the important problem of maintaining the plant in a good condition. In a country using modern machinery on a large scale for the first time, maintenance is likely to be inadequate, partly because of insufficient care on the part of operating agencies, and partly because of the lack of facilities. Usually there is insufficient awareness of the risks from inadequate care, and of the benefits from adequate maintenance. The situation has been aggravated by the short supplies of spare parts resulting from scarcity of foreign exchange. A little preventive care can keep plant and machinery functioning properly and prolong its life.

8. Industrial development requires increasing amounts of fuel and raw materials. There will be substantial increases in domestic supplies but not enough to dispense with imports. A careful and wise management of foreign exchange resources is essential so that enough fuel and raw materials are imported to operate existing industrial units at economic levels, and that new plant can be established to improve the country's ability to obtain the needed supplies.

9. Industrial development requires large numbers of persons with various kinds and degrees of technical skill : production workers, machinists, foremen, engineers and engineering technicians, accountants, salesmen, managers and so on. The country

is just beginning to have some people trained in these skills and very extensive training programmes are necessary to increase their supply. It seems inevitable during the Plan period that the supply of trained personnel will lag behind requirements and exercise a constricting influence on the development programme. The most critical shortage will be in the supply of trained managers.

10. Large-scale organised industry is generally conceived in terms of light industry and heavy industry ; the industrial development programme must be so framed as to maintain a balance between them. Broadly speaking, light industry turns out consumer goods, such as cloth, matches, cigarettes, radios, and shoes ; heavy industry produces goods needed by other industries or for construction, such as cement, heavy chemicals, iron and steel, and railway carriages. The distinction is not sharp in all cases, for many goods are needed by other industries as well as for consumption. Similarly what are known as intermediate goods might be the concern of light or heavy industry according to their nature or practical convenience. The distinction is, however, of basic significance in programmes of economic development. It is one of the purposes of planning to strike a balance between the claims of light and heavy industry according to the needs of the economy from time to time. Emphasis on one or the other in one period would influence the distribution of resources in future periods between consumption and investment. A strong emphasis on heavy industry is some-times advocatedto facilitate larger investment programmes and more rapid development in the future, or for developing defence potential. As against this, emphasis on light industry can be justified for bringing a rapid increase in consumption levels in the immediate future. This distinction, and the need for striking a balance, is of special significance in long-range planning. It is necessary to maintain a long-term perspective while preparing plans for five-year or similar relatively short periods.

11. We have drawn attention to some of the major problems of industrial development. The programme we have framed attempts to meet these problems. We cannot claim to have made more than a first attempt, however, and constant thinking and planning will be necessary to ensure that industrial development will promote the welfare of the people. In piloting the country through the stage of transition to industrialism the Government have to play the major role, guiding, assisting, encouraging and leading the people. But the role of private entrepreneurs is equally important. Planned industrial development directed towards defined social goals instead of immediate profits involves a challenge to them. Their answer, expressed in deeds and attitudes, will determine their future in this country. It is in the sphere of industrial development that private enterprise must establish its claim to a permanent place in the social and economic fabric of the country. It will be judged finally and decisively in terms of the service it renders to the people.

## Industrial Development Since Independence

12. Reliable statistical information on the development of industry in recent years is far from complete. Some data are available from the census of manufactures, which is based upon an annual report from the owners of factories employing 20 or more persons and using power. The census of manufactures has been completed for only one recent year, 1953, and very many firms which should have reported did not do so. The Department of supply and Development has gathered considerable information about basic industries. A number of items of information are available also about the production of certan goods—cloth, cigarettes and cement, for example—which are reasonably reliable and correct, and a large volume of miscellaneous figures for different individual industries, many of which are estimates of varying reliability. These data leave a great deal to be

desired. The most important lack is that there is very little reliable information about any aspect of small-scale and cottage industry. The figures that are available have been used to the maximum extent possible. For some of the smaller industries for which data were not available we made our own estimates. The limitations of the underlying data must always be kept in mind.

13. In the economy of undivided India the area that is now Pakistan produced a large share of the agricultural, forest and animal products on which the sub-continent's major industries were based. It was primarily a supplier of food and raw materials. Thus, jute was shipped to Calcutta for processing and cotton was sent to Bombay and other cities for spinning and weaving. They were the centres of industrial and commercial development. On partition Pakistan was cut off from the industrial facilities to process its raw materials. A very large part of the rapid industrial development in recent years has taken the form of establishing facilities to process these raw materials. Although there has been rapid and firm progress in almost the entire realm of industrial development, it is the industries based on raw materials produced in the country which have flourished most—such as cotton and jute textiles, leather, sugar, cement and paper.

14. In the first year of the country's industrial development, private investors, presented with a variety of promising opportunities, selected those which assured the highest profits with the least organisational effort and minimum investment. Although this was wise investment policy from the standpoint of the individuals concerned, it did not lead to balanced industrial development from the standpoint of the country. Several industries in which the country has considerable natural advantage remained largely undeveloped for lack of private enterprise. For the purpose of promoting these industries of national importance for which private enterprise was not forth-coming, the Pakistan Industrial Development Corporation was established in January, 1952. By the beginning of the Plan period the P. I. D. C. had undertaken some 30 schemes involving a total expenditure of about Rs. 560 million, of which the Government's share was about Rs. 380 million, and the private share Rs. 180 million. The P. I. D. C'.s major investments have been in paper and paper board, cement, fertilisers, jute mills, shipyards, and the Sui-Karachi gas pipeline. These six industries account for 85 per cent of the total capital outlay in the projects under execution at the beginning of the Plan period.

15. Table 1 presents information about the increase of production of selected major sectors of large scale industry* for which data are available for the years 1948 to 1954, inclusive. Production for the years 1948 and 1954 is evaluated at 1954 prices. In calculating the value columns, *ex*-mill prices were used as best they could be determined from various sources†. The value of industrial production in these selected sectors shows a remarkable increase, from Rs. 1302 million in 1948 to Rs. 2813 million in 1954. Quite naturally those industries for which the conditions were most favourable expanded most rapidly. Thus, the prodution of cotton cloth and yarn increased from Rs. 98 million in 1948 to Rs. 539 million in 1954, and the production of jute goods from nothing at all to Rs. 65 million in the same period.

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*Throughout this Chapter the term " Large scale industry " is used in the sense of the definition of Section 2(j) of the Factories Act of 1934 to mean any factory employing 20 or more workers and using power.

†These columns were not taken from the Explanatory Memorandum on the Budget, 1956-57, as were most of the other data.

## TABLE 1

*Summary of production of selected large-scale industries,* 1948—54 (1)

| Sector | Unit | Quantity of Production | | | | | | | Value of Production at 1954 ex-mill prices | | Per cent change in value of production 1948—1954 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1948 | 1949 | 1950 | 1951 | 1952 | 1953 | 1954 | 1948 (Million rupees) | 1954 | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| *Agricultural Processing* : | | | | | | | | | | | |
| Cotton ginning ... | Thousand tons (2) ginned cotton | 160 | 195 | 233 | 247 | 281 | 283 | 265 | 360·0 | 610·0 | +69 |
| Jute baling ... ... | Millions of pucca bales (3) | 1·1 | 1·7 | 2.5 | 3·0 | 3·7 | 1·8 | 2·2 | 121·0 | 246·0 | +103 |
| Tea manufacturing ... | M. lbs. (4) | 43·5 | 47·1 | 53·2 | 53·4 | 53·1 | 55·7 | 55·8 | 87·0 | 111·6 | +28 |
| *Milling* : | | | | | | | | | | | |
| Wheat (5) ... ... | Thousand tons milled wheat | 390 | 392 | 361 | 346 | 270 | 306 | 340 | 123·3 | 107·8 | —13 |
| Rice (6) ... ... | Thousand tons milled rice | 1680 | 1657 | 1635 | 1594 | 1590 | 1729 | 1850 | 317·8 | 350·0 | +10 |
| *Food Products Industries* : | | | | | | | | | | | |
| Edible vegetable Oils (7) ... | Thousand tons | 60 | 60 | 75 | 80 | 92 | 100 | 120 | 111·5 | 223·0 | +100 |
| Vegetable ghee ... | Thousand tons | 0·1 | 3 | 4 | 6 | 8 | 11 | 11 | 0·3 | 36·3 | +12,000 |
| Fruit & vegetable processing (7) | M. lbs. | 1·8 | 1·8 | 1·9 | 1·9 | 2·0 | 3·5 | 5·0 | 1·3 | 3·8 | +192 |

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(1) *Source* : " Explanatory Memorandum on the Budget of Govt. of Pakistan for 1956-57 ", except where otherwise indicated.
(2) Long tons of 2240 lbs.
(3) *Source* : Directorate of Jute Prices, East Pakistan.
(4) M : Million.
(5) 10% of total crop as given in " Explantory Memorandum on the Budget, 1956-57 ".
(6) 20% of total crop as given in " Explanatory Memorandum on the Budget, 1956-57 ".
(7) Planning Board Estimates.

TABLE 1—*contd.*

| Sector | Unit | Quantity of Production 1948 | 1949 | 1950 | 1951 | 1952 | 1953 | 1954 | Value of production at 1954 ex-mill prices 1948 (Million rupees) | 1954 (Million rupees) | Per cent change in value of production 1948-1954 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| *Agricultural Processing* : | | | | | | | | | | | |
| Sugar ... ... | Thousand tons | (1) 7 | 39 | 33 | 43 | 64 | 86 | 76 | (2) N.A. | 98·0 | N.A. |
| Cigarettes ... ... | Millions | *Nil* | 241 | 1488 | 2716 | 3170 | 3996 | 4588 | *Nil* | 67·8 | All new capacity |
| *Textiles* : | | | | | | | | | | | |
| Cotton cloth ... ... | M. yds. (3) | 88·06 | 92·44 | 106·29 | 127·16 | 174·16 | 251·55 | 345·25 | 86·7 | 347·8 | +300 |
| Surplus cotton yarn ... | M. lbs. | 6.20 | 9·26 | 13·39 | 19.37 | 19·98 | 52·54 | 99·94 | 11·7 | 190·8 | +1630 |
| Woolen and worsted yarn | M. lbs. | *Nil* | *Nil* | *Nil* | 1·14 | 1·54 | 8·7 | 7·5 | *Nil* | 34·0 | All new capacity |
| Silk (art fabric) ... | M. yds. | N.A. | N.A. | N.A. | 1.0 | 3·7 | 10·2 | 12·6 | N.A. | 37·8 | N.A. |
| Jute goods ... ... | Thousand tons | *Nil* | *Nil* | *Nil* | 1·4 | 17·57 | 50·12 | 53·14 | *Nil* | 64·7 | All new capacity |
| *Paper* : ... ... | Thousand tons | *Nil* | *Nil* | *Nil* | *Nil* | *Nil* | *Nil* | 20·0 | *Nil* | 23·3 | All new capacity |
| *Leather* : | | | | | | | | | | | |
| Upper ] ... ... | M. sq. ft. | 1·0 | 1·1 | 1·5 | 2·25 | 7·2 | 7·2 | 8·6 | 1·8 | 15·6 | +766 |
| Sole ... ... | M. lbs. | 1·5 | 1·8 | 2·5 | 3·1 | 8·3 | 8·3 | 9·6 | 1·5 | 9·8 | +553 |
| *Cycle tyres and tubes* ... | Thousand | *Nil* | 13 | 112 | 621 | 776 | 1367 | 1902 | *Nil* | 7·7 | All new capacity |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Chemicals* : | | | | | | | | | | | |
| Sulphuric acid (4) ... | Thousand tons | 0·33 | 0·33 | 0·4 | 0·7 | 0·7 | 1·0 | 1·4 | 0·1 | 0·6 | +500 |
| Soda ash (4) ... ... | Thousand tons | 20 | 20 | 20 | 23 | 23·5 | 24 | 25 | 7·4 | 9·3 | +26 |
| Caustic soda (5) ... | Thousand tons | *Nil* | *Nil* | *Nil* | *Nil* | *Nil* | *Nil* | 1·5 | *Nil* | 7·8 | All new capacity |
| Pharmaceuticals ... | Thousand glns | N.A. | N.A. | 100 | 100 | 125 | 150 | 158 | N.A. | 2·1 | N.A. |
| Paints & varnishes (4) ... | Thousand tons | *Nil* | *Nil* | 1·0 | 1·7 | 2·0 | 3·5 | 8·0 | *Nil* | 17·4 | All new capacity |
| Matches (7) ... (20-30 sticks) ... | Thousand gross boxes | 650 | 992 | 1054 | 936 | 546 | 4969 | 9528 (6) | 2·2 | 33·2 | +1550 |
| Soaps (5) ... ... | Thousand tons | *Nil* | *Nil* | *Nil* | 3·2 | 10·0 | 12·0 | 15·0 | *Nil* | 25·2 | All new capacity |
| Rosin & turpentine (5) ... | Thousand tons | 1·8 | 2·0 | 2·0 | 2·0 | 2·2 | 2·3 | 2·3 | 0·7 | 1·0 | +43 |
| *Petroleum refining* : ... | M. glns. | 10·6 | 23·9 | 39·9 | 41·3 | 48·5 | 56·6 | 61·1 | 6·2 | 36·0 | +500 |
| *Non-matalic mineral products* : | | | | | | | | | | | |
| Glass (4) ... ... | Thousand tons | *Nil* | *Nil* | 6·0 | 7·0 | 7·2 | 9·0 | 10·5 | *Nil* | 5·2 | All new capacity |
| Cement ... ... | Thousand tons | 324 | 422 | 414 | 499 | 530 | 596 | 673 | 25·9 | 54·0 | +108 |
| *Engineering Industries* : | | | | | | | | | | | |
| Steel melting ... ... | Thousand tons | 2·0 | 4·0 | 3·0 | 3·0 | 7·0 | 10·0 | 10·0 | 0·7 | 3·6 | +414 |
| Steel rerolling ... ... | Thousand tons | 3·0 | 12·0 | 23·0 | 24·0 | 27·0 | 25·0 | 69·0 | 1·2 | 21·8 | +1716 |
| *Electrical Industries* : | | | | | | | | | | | |
| Electric fans (5) ... | Thousands | N.A. | N.A. | N.A. | 10·0 | 20·0 | 20·0 | 26·0 | N.A. | 2·9 | N.A. |
| Other equipment (5) (including radios) ... | Rs. Million | N.A. | N.A. | 1·9 | 2·2 | 5·0 | 6·2 | 7·1 | N.A. | 7·1 | N.A. |

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(1) Data relate to nine months (April 1948 to December 1948).

(2) N.A. — Not available.

(3) M. — Millions.

(4) *Source* : Report of the Economic Appraisal Committee, February, 1953.

(5) Planning Board Estimates.

(6) *Source* : Explanatory Memorandum on the Budget, 1955-56.

(7) 40—60 sticks converted to 20—30 sticks.

16. There are no estimates of changes in small-scale and cottage industries. It is likely that while growth has been taking place in small industries, it has not been so rapid as in large-scale industry. Although as yet no comprehensive index of industrial production is available, a partial index based on the production of 17 industries, mostly consumer-goods industries, and using 1950 as the base year equal to 100, shows an increase to 350 in 1955.

17. It is clear that at independence there was little industrial development in Pakistan aside from the traditional cottage and handicraft industries. Since then, development has been very rapid—almost spectacular ; the output from large-scale plants has much more than doubled. The share of industry in the entire national income has been rising, but still represents only a small part of the total. Its rate of growth has, however, probably been higher than that of any other sector.

18. Since independence, investment in consumer goods - industries has proceeded at a faster pace than in producer - goods industries. Excluding railways, power stations and ordnance shops, which are not included under " industry " for purpose of this chapter, about 60 per cent of present industrial investment is in consumer-goods industries as against 40 per cent in producer-goods industries. It is natural that in the early stages of industrial development light industry, being less capital-intensive and involving simpler technology, should expand more rapidly than heavy industry. This was also necessary to gain self-sufficiency in consumer goods in order to release foreign exchange resources for the purchase of capital goods. It has also odintruced a measure of stability in the economy of the country.

19. The foregoing paragraphs summarise the available information about the growth of industry since independence. It is possible to give a somewhat fuller account of the situation just prior to the Plan period. Table 2 presents information on large-scale industrial production in 1954, and covers a somewhat wider range of industries than Table 1. The striking feature of this table is the heavy concentration of production in the three categories : agricultural processing industries, food products industries (including tobacco), and textiles. Together these three groups accounted for production of a value of about 2570 million rupees out of a total large-scale industrial production of about 3410 million rupees, or about 75 per cent of the whole. This is an indication of the dependence of the country's industry on agricultural raw materials. Very rough estimates of production in 1954 in various sectors of small-scale industry show approximately the same degree of dependence on such materials.

20. To a large extent the industrial development of recent years has been guided not by a carefully worked out long range strategy, but by a series of *ad hoc* decisions based on what seemed most necessary and expedient at the time. This does not mean that the development that has taken place was wrong. We have been impressed by the fact that the great majority of plants that were established were soundly conceived, and the resulting industrial structure is effective and solidly based. Nevertheless the situation has changed. Many of the easy and obvious opportunities for investment which offered prospects of large immediate profits have been exploited. There remain many industries in which Pakistan has natural advantages still waiting to be systematically developed. In established lines as more industrial capacity is installed, the days of automatic profits will pass, and competition will begin to force the attention of businessmen towards increasing efficiency and lowering prices. Future investment must be more carefully planned to bring maximum results. In general the Plan period must be a period of consolidation, fuller use of existing capacity, and better balanced development. The country's industrial base must be consolidated, but this is not inconsistent with a well planned expansion of industrial development. Industrialisation must maintain its tempo though on a more carefully planned and balanced basis. This along with improvements in agricultural production holds out the

main hope of improving the foreign exchange position of the country in a reasonable period of time to a point where in addition to meeting maintenance requirements, the country would be able to finance from its own resources a sizeable programme of development from year to year. Industries permit better standards of living and generate larger profits which can be utilised for expanding investment programmes. Industrialisation is also needed to provide employment for the increasing labour force in urban areas.

### TABLE 2

*Large-scale industrial production, 1954*

| Sector | Production, 1954 | | |
|---|---|---|---|
| | Quantity | Value (Million rupees) | Per cent of total production |
| (1) | (2) | (3) | (4) |
| *Agricultural processing* : | (1) | | |
| Cotton ginning ... ... ... ... | 1·5 M. bales. | 610·0 | |
| Jute baling ... ... ... ... ... | 2·6 M. pucca bales. | 286·0 | |
| Tea manufacturing ... ... ... ... | 55·8 M. lbs. | 90·3 | |
| Milling : | | | |
| Wheat ... ... ... ... ... | 0·34 M. tons. | 117·0 | |
| Rice ... ... ... ... ... | 1·85 M. tons. | 350·0 | |
| Sub-total ... ... | | 1453·3 | 42·0 |
| *Food products industries* : | | | |
| Edible vegetable oils ... ... ... ... | 120,000 tons. | 223·0 | |
| Vegetable ghee ... ... ... ... | 11,000 tons. | 36·3 | |
| Food processing ... ... ... ... | 5·0 M. lbs. | 3·8 | |
| Sugar ... ... ... ... ... | 76,000 tons. | 98·0 | |
| Cigarettes ... ... ... ... ... | 4588 millions. | 67·8 | |
| Sub-total ... ... | | 428·9 | 13·0 |
| *Textile and clothing*: | | | |
| Cotton ... ... ... ... ... | Surplus yarn 100 M. lbs. | 190·8 | |
| | 345 M. yds. cloth | 347·8 | |
| Woollen ... ... ... ... ... | 7·5 M. lbs. yarn. | 34·0 | |
| Jute ... ... ... ... ... | 53,140 tons. | 64·7 | |
| Silk and rayon ... ... ... ... | 12·6 M. yds. | 37·8 | |
| Hosiery and knitted goods ... ... | N.A. (2) | 9·0 | |
| Apparel ... ... ... ... ... | N.A. | 1·5 | |
| Sub-total ... ... | | 685·6 | 20·0 |

(1) M=Million.

(2) N.A.—Not available.

TABLE 2—*contd.*

| Sector | Production, 1954 | | |
|---|---|---|---|
| | Quantity | Value (Million rupees) | Per cent of total production |
| (1) | (2) | (3) | (4) |
| *Wood products and paper* : | | | |
| Saw milling | 1·8 M. cu. ft. | 10·4 | |
| Wood-ware (mostly furniture) | N.A. | 2·2 | |
| Plywood and tea chests | 200,000 sq. ft. | 0·1 | |
| Printing, writing and wrapping paper | 20,000 tons. | 23·3 | |
| Sub-total | | 36·0 | 1·1 |
| *Leather and products* : | | | |
| Leather tanning | 8·6 M. sq. ft.<br>9·6 M. lbs. | 25·4 | |
| Leather shoes | 10·4 M. pairs. | 104·0 | |
| Sub-total | | 129·4 | 4·0 |
| *Rubber products* : | | | |
| Cycle tyres<br>Cycle tubes | 1·9 M. units (Tyres and tubes combined) | 7·7 | |
| Rubber soled canvas shoes | 5·0 M. pairs. | 15·0 | |
| Other rubber products | 1,000 tons | 8·3 | |
| Sub-total | | 31·0 | 0·9 |
| *Chemical Industries* : | | | |
| Heavy chemicals : | | | |
| Sulphuric acid | 1,400 tons. | 0·6 | |
| Soda ash | 25,000 tons. | 9·3 | |
| Caustic soda | 1,500 tons. | 7·8 | |
| Pharmaceuticals and fine chemicals | N.A. | 5·6 | |
| Paints and varnishes | 8,000 tons. | 17·4 | |
| Matches | 9·5 M. gross boxes (1) (20-30 sticks) | 33·2 | |
| Soap | 15,000 tons. | 25·2 | |
| Turpentine and rosin | N.A. | 0·6 | |
| Sub-total | | 99·7 | 3.0 |

(1) 40-60 sticks converted to 20-30 sticks.

TABLE 2—*contd.*

| Sector | Production, 1954 | | |
|---|---|---|---|
| | Quantity | Value (Million Rupees) | Per cent of total production |
| (1) | (2) | (3) | (4) |
| *Liquid fuels* : | | | |
| Petroleum refining | 61·1 M. gallons | 36·0 | 1·0 |
| *Non-metallic mineral products* : | | | |
| Structural clay products | 7,000 tons. | 1·3 | |
| *Glass* : | | | |
| Hollow-ware | 10,500 tons. | 5·2 | |
| Cement | 650,000 tons. | 54·0 | |
| Cement products | N.A. | 3·2 | |
| Ceramics and refractories | 500 tons Ceramics<br>6,000 tons Refractories | 0·6 | |
| Sub-total | | 64·3 | 2.0 |
| *Engineering Industries* : | | | |
| Steel melting | 10,000 tons. | 3·6 | |
| Steel re-rolling | 69,000 tons. | 21·8 | |
| Shipyards | N.A. | 10·2 | |
| Medium and light engineering (1) | N.A. | 70·0 | |
| Non-ferrous products | N.A. | 29·0 | |
| Enamelware | N.A. | 0·8 | |
| Sub-total | | 135·4 | 4·0 |
| *Electrical Industries* : | | | |
| Motors, switch gear and fans | N.A. | 7·0 | |
| Cables, batteries and appliances | N.A. | 0·5 | |
| Radios and rediffusion | 15,000 Radios. | 3·0 | |
| Sub-total | | 10·5 | 0·3 |
| *Other Industries* : | | | |
| Printing and publishing | N.A. | 25·0 | |
| Film industry | 15 Films. | 6·0 | |
| Miscellaneous industries not listed (2) | N.A. | 270·0 | |
| Sub-total | | 301·0 | 8.8 |
| Total industries | | 3411·1 | 100 |

(1) Includes iron foundries, but not steel melting, casting, or re-rolling.

(2) Includes such industries as bakery goods, dairy products, beverages, breweries, plastic products, sports goods, grinding wheels, surgical instruments, musical instruments, pencils, paper products, bone crushing, oxygen and acetylene, and cosmetics, except where no power is employed, in which case they are included under small-scale industry.

**Objectives of industrial development**

21. The first purpose of industrial development is to produce, with the resources that can be devoted to it, the largest amount of those products which are wanted most in the country. The objective is to pursue those development opportunities which are most efficient in the sense that they will yield the largest returns to the nation in relation to the investment that must be made in them. Thus an investment in new plant or in improving existing plant which would cost 10 million rupees and would thereafter add 5 million rupees each year to the national product should clearly be preferred to an alternative investment which also would cost 10 million rupees, but would add only 1 million rupees to the national product. Maximum immediate returns are not the only consideration, however. The benefits of each scheme must be judged in its relation to the total programme and its long range prospects. Schemes in oil exploration, iron and steel, and aforestation are examples of investments needing to be planned in the long-turn perspective.

22. The second objective of industrial development and in many ways the most important in the present circumstances of the country is to earn or save foreign exchange. The country's foreign exchange situation is very tight, and is likely to remain so for some years. Foreign exchange earnings will grow over the next few years ; but a substantial improvement can come also from increased domestic production of goods now imported. As plants are installed which enable domestic production to be substituted for imports, foreign exchange will be freed which can be used to import more machinery and raw materials for further plants. If the successive investments are large enough, the country can overcome the extreme stringency of foreign exchange which characterises the economy now. The purpose must be to invest in those industries which save the largest amount of foreign exchange in relation to the cost of the investment. An investment which saves an amount of foreign exchange annually equal to 50 per cent of the investment should clearly be given priority over an investment which only saves in foreign exchange 10 per cent of its cost each year. Resources are scarce, and must be employed in those activities where the returns will be highest.

23. The third objective of industrial development must be to produce goods which would be needed in carrying out the Plan, such as cement, packing paper, containers, tea chests, some of them for the industrial programme itself. This is indeed necessary to prevent the emergence of new liabilities against foreign exchange resources as well as to maintain consistency in planning.

24. The fourth objective of industrial development is to put people to work ; to employ the labour force usefully and for the benefit of the community. The fundamental characteristic of industrial production is that through organisation and the use of tools and equipment workers are enabled to produce things which they could not produce at all, or could produce only very slowly and at much greater cost, if they worked alone. To employ people in well-conceived industrial enterprises—whether small or large—means to obtain more output per worker, and thus to increase the national product for distribution among the people. In addition, under present circumstances there is a great deal of unemployment and under-employment in the country, and it is a major objective of national economic and social policy to create additional opportunities for productive employment for those who want work. Here again the available resources must be used wisely in order to obtain the maximum amount of employment from the resources invested. And it is vitally important to consider the indirect employment as well as the direct employment which will result from a given investment. For example, a power station will normally employ only a few people directly in its operation, but will provide electricity for the operation of many industrial plants employing perhaps many thousands of workers. Even where

the results in terms of indirect employment cannot be seen so clearly, such results do follow from investments and are often substantial. Large profits from new investments will permit the development of social services and create new jobs.

25. There has been much discussion in recent years about the relative value in an under-developed country of investments intended to obtain the maximum increase in national income through using the most modern technical methods and those intended to employ the maximum number of persons through using less modern technological methods. This issue is often described in terms of a distinction between " capital-intensive " and " labour-intensive " investments, the latter often being regarded as preferable. In an under-developed economy suffering from scarcity of capital the question of technology is very important ; but capital-intensive investments cannot be rejected without duly analysing and weighing all the relevant factors. Full account must be taken of the indirect employment generated by such investments as well as of the profits created by them which permit expansions of employment and facilitate larger investment programmes. In a number of cases highly capital-intensive industries are thoroughly desirable even under present circumstances in the country. For example, power stations will yield high returns in terms of additional national output and at the same time create large opportunities for additional employment. The jute industry also must employ the latest equipment in order to establish itself in the competitive world market.

26. Many of the assumed conflicts between capital-intensive and labour-intensive processes are stated in terms of extremes, neither of which offers the best solution. It would be possible, for example, to build large construction projects at the one extreme almost entirely by hand labour and at the other extreme almost entirely by machinery. It is frequently claimed that the one is preferable from the standpoint of employment and the other from the standpoint of national income. Both assertions are only partially true. To operate such a project exclusively with hand labour would usually be so costly that other projects would have to be deferred and their employment opportunities lost. To operate it exclusively with machinery would likewise require such a heavy investment that other projects would have to be postponed and their potential contribution to the national income lost. The true solution to such problems will probably be found at some point between the two extremes, based upon the relative cost and efficiency of doing the job with different combinations of labour and capital equipment. In this country it will ordinarily be profitable to use a higher proportion of labour than is customary in advanced countries, because labour is more abundant and cheaper. But it would be easy to go too far and put misdirected emphasis upon creating any kind of jobs, or upon preserving stagnant and out-dated techniques in order to avoid apparent disturbances in employment opportunities. Such actions would slow down the rate of increase in national income and cut down the total opportunities for additional employment. The history of economic development shows that improved techniques, while causing immediate disturbance to employment, have contributed to expanded production, consumption, and employment. Progress indeed would be inconceivable without them.

27. Unfortunately there has been little scientific study of the relative costs and benefits of adopting different techniques in specific cases. The necessary engineering and economic research has not been conducted anywhere in the world, so far as we are aware, which would permit an informed decision to be made about the best technology to use in each industry, given the relative scarcity of capital and abundance of labour in this country. In these circumstances we have made the best judgments we could in the specific cases that faced us. Our recommendations give strong emphasis to small-scale and cottage industries, where employment per unit of capital is often high, in those cases where production is relatively efficient or can be made so. It is necessary, however, to guard against the danger of perpetuating out-dated and inefficient techniques at the cost of society. Protective measures once extended, are difficult to withdraw and tend to become permanent.

## Industrial management training and research

28. Industrial management as a profession is not widely understood in the country, and many persons who are in fact carrying the responsibility of managers are not trained for the work. There is little recognition of the management profession as such. A very large percentage of industry is family-owned and operated, and outsiders are not hired above the rank of foreman. This is true even among some of the largest concerns. As a consequence, the wide variety of skills and experience required to operate a large enterprise successfully is frequently lacking, and factories in many cases do not achieve the efficiency for which they were designed. Similarly, the managers of most small-scale enterprises have had little or no training and frequently do not have even a rudimentary knowledge of business accounting to help them in making decisions. In remedying this situation three lines of action are suggested : (a) training young people in the management profession at the university level, (b) providing in-plant training for the present management, and (c) improving supervisory personnel through special training programmes.

29. We are assuming there is a desire to improve the management and increase the productivity of industry. For the most part this assumption seems warranted. The incentive to improve the productivity of a plant is ordinarily provided by the spur of competition from other producers, which impels each producer to seek to increase his plants' productivity and to lower costs and prices in the interest of larger sales. It is possible of course for producers to try to join together in cartels for the purpose of avoiding competition. If industry is to be dynamic rather than static, it must be the continuing policy of the Government to prevent such cartel operations. In a few fields of industry there will be only one or two producers until the country's consumption expands further, and in some fields such as certain railway and telephone equipment the Government is the only producer. In these cases the spur of competition is absent, and special measures are necessary to require managers to strive for higher efficiency and productivity. In cases where there are only one or two private producers, one of the most effective means for requiring efficiency is the potential competition of lower-priced imports, and it must be a steady purpose of the Government's import control and tariff policies to avoid shielding inefficient local producers from the effects of foreign competition. In cases where the Government is a monopoly producer, the standard of increasing efficiency must be applied to management as a matter of public policy.

## Management training

30. Assuming that managers have the desire to improve the efficiency of their plants, they must know how to proceed, and to this end several measures are needed. First of all, training for business management must be recognised and established as a professional course of study in the universities. One such course of training has been established so far, in the Institute of Business and Public Administration of the University of Karachi, and other similar professional courses are proposed at other Universities, (as noted in the Chapter on Education and Training). During the Plan period the numbers of graduates from these courses will necessarily be small, but they will nevertheless be significant ; in the long run a very great influence can be exerted by these professional courses to prepare young men for junior executive positions in business and industry.

31. A second important way of bringing knowledge about better management and organisation to managers is through advisory and training services brought to the plant. In more advanced countries consultants on management and training are available from many experienced private firms. No such firms yet exist in Pakistan, though they will undoubtedly be established in the future. It is necessary for Government programmes to fill this gap and a beginning has been made in this direction.

32. In 1955 a productivity mission from the International Labour Office began to function with special reference to the textile industry. The advisers in the mission have conducted a number of management training courses in textile mills in Karachi, Lyallpur and other centres, and have also given advice to a number of firms on management and organisation. The results have been impressive : In one weaving shed, for example, output was raised 40 per cent within a few months, and further increases are expected. During the Plan period it is proposed to establish at least one productivity centre, to put this work on a permanent footing. Such productivity centres have been set up in almost all countries in Western Europe, in Egypt and in India, and have proved to be of considerable value. Among the activities of this productivity centre, the most important would be the organisation and conducting of specialised courses in industrial management for executives and supervisors from private industry and government undertakings. In addition, the staff of the centre would act as advisers in management and organisation to industrial concerns. At a later date, when sufficient trained staff members are available, the centre will begin to conduct research in management techniques. The productivity centre could most appropriately be organised within the Ministry of Industries, although it must of course have close liaison with the Ministry of Labour since the purpose of raising productivity is to benefit workers and consumers as well as the owners of industry. It is proposed to establish this first productivity centre in Karachi, from which teams of consultants would travel to East and West Pakistan. Branch centres should be established, the first one in Dacca, as soon as enough trained persons are available.

33. A second scheme for improving management now in operation is the training-within-industry programme of the Institute of Personnel Training attached to the PIDC. The work of this Institute is primarily directed toward improving the management skills of supervisors from the charge-hand level to junior managers. The Institute has had expert advice and has succeeded since its establishment in 1954 in building a staff sufficiently well trained to conduct the training courses in private firms and government undertakings. Operations have been carried on in both Wings, and regional offices have been established in Dacca and Lahore. The Institute's work has been useful and should be continued, either independently or in association with the Productivity Centre.

34. It is very important to assist small-scale and cottage industries with their problems of management and organisation, but especially difficult to do so because of the large numbers of units, their dispersion, and the difficulty of communicating with them. The Plan provides for meeting this need through demonstration and training centres, small-scale industry specialists attached to the Village AID organisation, and other means which are discussed in Chapter 22.

**Improving the technical skills of the work force**

35. It is frequently possible to increase production from existing equipment by raising the level of technical and operative skill of the working force. The general subject of training technicians and industrial workers is discussed in the chapters on Education and on Labour and Employment. It is sufficient to say here that the Plan provides for a rapid increase in the education of persons with skills useful for industrial work, though the total number turned out during the Plan period cannot be large. Young men coming out of school should not be regarded as finished technicians or workmen but rather as persons qualified to receive intensive industrial training. It is not the function of the educational system to turn out skilled workmen. That is the function of industries themselves, and systems of apprenticeship, on-the-job training, and in-service training must be installed widely in industrial establishments for this purpose.

36. Training programmes in industrial establishments should not be limited to new employees. A good industrial training system will be capable of lifting the level of skill of virtually every empolyee in a plant, old or new, over a period of time. It is essential therefore to think of industrial training as a permanent activity of any industrial firm, which will make possible steadily more production with the same equipment.

37. There is no basic reason why continuous and effective training programmes should not be conducted in small as well as large industrial establishments, but there are special difficulties. Few managers of small businesses understand the importance and methods of good training, and they cannot afford the special staff and facilities which large firms can devote to training. For this reason it is proposed that one of the major purposes of the small industries demonstration-*cum*-training centres will be to conduct specialised training courses for persons employed in small-scale industries, and to advise the owners and managers of such businesses how to carry on effective training programmes in their own establishments.

**Industrial research**

38. Next to training programmes for management and workers, the most important service need of industry is for adequate research. Two main kinds of research are needed: market or consumption research, and research in manufacturing processes and materials. Very little research of either type is taking place at present, though a beginning has been made in research on processes and materials by the laboratories of the Council of Scientific and Industrial Research, and one or two other institutions.

39. Market, or consumption, research is required to find out what industrial products are needed and wanted in the country, how those needs and wants have been met in the past, and how they could best be met in the future. Very little accurate information is available on such matters. It is obvious that a country of 80 million people with a rising population and a rising national income will provide a large and expanding market for industrial products. But this general conclusion does not go far toward answering such specific questions as : how many yards of cloth per person will be wanted in the country each year ; how fast will the demand for processed sugar rise in relation to the rise in national income ; and how many pumps of different kinds will be required each year to provide pure water in the country's villages. Questions of this type should be answered by detailed consumption surveys, using general statistical information about population, income, prices, and so forth, supplemented by field investigations, sample surveys, and other systematic and detailed enquiries. At present the general statistical information is very limited and virtually no detailed surveys have been made. In preparing the Plan we have frequently had to rely on nothing firmer than an estimate of past domestic production plus imports as an indication of the size of the market for different products. This situation must be improved as rapidly as possible and we recommend that the Ministry of Industries, through the Industrial Planning and Development Organisation proposed below, should take the leadership in starting systematic market research, using the agency of the National Sample Survey. For export products, like jute, surveys should be made also of trends in external markets, and research directed towards the possibility of expanding sales through the development of new uses.

40. Research on industrial materials and processes is urgently needed. Business firm and the Government are both hampered at present by its lack. A large number of question demand immediate answers. To what extent can domestic substitutes economically replace imported raw materials ? To what extent can locally available paper and glass be substituted for imported metal in packaging ? Are there by-products of existing industrial processes, now going to waste, which could economically be used in producing other goods ?

What chemical industries should be established using the country's large reserves of natural gas as a raw material ? What is the most economical source for sulphur : natural gas, coal, gypsum, or some other source? How can the processes used by small-scale industries to produce bricks, ceramics, and many other products be made more efficient ? Are there possible new uses for indigenous raw materials, such as jute? These are merely examples; the list could be greatly extended. Some of the questions are relatively simple to answer; others are very complicated and would acquire considerable field investigation, laboratory testing and economic analysis before reliable judgements could be reached.

41. Laboratories are necessary to conduct research on many questions concerning industrial processes and materials, and the Plan provides for the further development of the laboratories of the Council of Scientific and Industrial Research, the Institutes of Glass and Ceramics, Cotton Technology, and others. The country's greatest lack at the moment, however, is in the guidance and direction of the work of these laboratories and other means for industrial research. Accordingly, our major recommendation in this field is for the establishment of a department of Industrial Planning and Development in the Ministry of Industries. This organisation would not supplant any present organisation, such as the Council of Scientific and Industrial Research. It would plan and arrange for research and the Council will continue to be one of the main organs for carrying it out. Such an organisation would be in a position to survey the entire field of industrial research ; to give direction and guidance to the Government's industrial laboratories and other research facilities ; to arrange for research to be conducted by universities and private organisations ; and to prepare programmes of industrial research giving due weight to priorities among the different requirements, and allocating the limited resources to their most valuable uses. Industrial research should not be considered, however, as solely the Government's responsibility. Associations of manufacturers and merchants, cooperative societies and individual industrial firms ought to make a beginning in conducting research in matters of their special concern.

42. The great bulk of the industrial research which should be done in the country at present is of the nature of applied rather than basic research. The libraries of research organisations in advanced countries are bulging with the results of investigations which need not be repeated here. For the most part the work should consist of obtaining the results of the latest and best investigations of research centres in other countries and adapting those results to local conditions. It will be extremely important to establish close working relationships with one or more first-class research institutes in the U. S., the U. K., or other countries, through which information can be obtained, and repetition of work already done elsewhere avoided. The laboratories engaged on industrial research must be regarded as productive, functional parts of the country's industrial development facilities. Their results must be measured by their direct effect in improving efficiency and increasing industrial output, and while encouragement and opportunities should be extended to people who are inclined towards general research and are well fitted for it, the contribution these laboratories make to the general advance of science for the time being at least must be regarded as secondary. For example, it may be some time before the country has the equipment and trained scientists to make original contributions to the advance of atomic energy research but it is most important in the meantime to obtain and apply for the country's benefit the results of atomic energy research done elsewhere.

### Raising productivity of existing capacity

43. An industrial development programme does not mean only investment in new undertakings. Normally the largest immediate gains in production and employment are to be found by using existing plant and equipment more efficiently. It is necessary in many cases to add new capacity, but the first step in an industrial development programme must be to achieve the greatest production from industrial capacity already in existence. This applies, of course, to small-scale as well as to large-scale industry.

44. In general, it is possible to obtain considerably more production from the industrial facilities now existing in the country, and in the process to save foreign exchange and create additional employment. Sometimes this requires some new investment—additional equipment, for example, or modern machines. Frequently, however, greater efficiency and productivity can be obtained simply through better management and organisation of the work, better training of the work force, operating on double or triple shifts, or a better flow and handling of raw materials and spare parts. These opportunities are of the greatest importance, because they can yield more production without sizeable additions to capital equipment—and capital equipment is extremely scarce. Methods for spreading capital more thingly must therefore be vigorously applied.

45. One important means for obtaining maximum production from the capital equipment we already have is to operate that equipment as many hours in each day as possible. Adding a second shift of workers, or even a third shift, so that the plant operates 16 or 24 hours a day instead of eight, can result in doubling or tripling the output (and the employment) of the plant, with little or no addition to capital equipment. Many plants in the country—in the cotton textile industry for example—have been working regularly on a two or three shift basis, and the practice could be extended. Small businesses are often as capable as large of multiple shift operations. Perhaps the example of such operation that is nearest perfection is that of the rickshaw drivers, where three drivers take turns in operating the full 24 hours each day, thus achieving virtually 100 per cent use of their capital equipment, the rickshaws.

46. Where capital is so scarce as it is in this country, it would obviously be wasteful to establish two plants where one plant working a double shift could produce the same results. In general, government policy should be that before any new capacity is installed in an industry, it must be demonstrated that the additional output could not be obtained as economically by more intensive use of existing capacity.

47. At present the main obstacle to full use of existing capital equipment is the shortage of raw materials and spare parts, a good part of which must be imported. On no subject have businessmen addressed us with more vehemence. It is clear that the absence of sufficient imports, and also the intermittent, stop-and-go character of the flow of imported items, are very costly to the country, since they require plants to operate at low volume and therefore high unit cost, and also necessitate frequent and costly slowdowns or even interruptions of operations. This requires a system of priorities to derive maximum benefit from available foreign exchange resources. High priority has to be given to spare parts and raw materials, but new undertakings are also necessary to enable the country to replace imports by domestic production, and to increase export earnings. The Plan provides for foreign exchange to import raw materials and replacement parts in appreciably larger amounts than in recent years. This question is further discussed below.

### New investment in industry

48. As we have emphasised before, the country should allocate the resources available to those industrial investments which will yield the maximum returns, whether measured in growth of national income, in earnings or savings of foreign exchange, or in additional employment. Ideally, in order to draw up the best possible programme for new investment, it would be necessary to have complete technical and economic analyses of a great many alternative possibilities, which would show the various costs and returns from each. This would permit quantitative comparisons to be made among them and choice of the combination which would give the largest and most rapid gains.

49. Such information is only partially available in the country today. Useful project reports are available concerning many of the large P.I.D.C. projects. The information given by the 1953 census of manufactures shows costs and returns for the industries which were

established at that time. We have gathered such other information as we could from government agencies and private businessmen. In many cases it has been possible to make reasonably accurate estimates concerning prospective returns on investment, as in rayon production for example, where the techniques involved are fairly well standardized and the elements of cost are well known. In all cases the effect of new or expanded capacity on national income and on the balance of payments has been taken into account. Because of the urgent need of improving foreign exchange resources we have given special importance to the foreign exchange aspects of industrial schemes. All this information has been used in drawing up the detailed programme of proposed new investment for modernisation, for expansion of existing facilities, and for new plants which is described later in this chapter. In addition, this programme has been discussed with representatives of the industries and government agencies concerned, and their comments and views have been taken into account. Nevertheless, any recommendations made at the present time for new industrial investment must be based in large part upon qualitative judgments rather than upon adequate technical data. A good deal of further study and investigation will be needed as the programme is put into effect, and changes will no doubt be necessary.

50. Several different types of new investment are included in the industrial development programme. The first is modernisation of plant and equipment. This includes the replacement of obsolete and worn-out equipment, bringing in new and cheaper sources of fuel and power, improving the physical layout of the plant to provide for a more efficient flow of work, improving the methods of handling materials, and other actions to raise productivity and lower costs. Conspicuous examples of modernisation needed in the country are found in cotton ginning, where most of the gins are so old and worn-out that much of the ginned cotton is below world standards of cleanliness and quality and sells at a discount in world markets ; and in the handloom industry ; where faster, more efficient looms could double the daily production of the handloom weavers. Some modernisation, however, is needed in virtually every industry, though we recognise that the programme we have included in the Plan would not be easy to carry out, and might spread over more than one Plan period. It would present greater difficulties than the installation of new plants. Apart from the fact that a number of units which are in need of modernisation are evacuee property, and do not therefore belong to the beneficiaries, the programme must in nature be a diffused one. In addition, the owners may not be able or willing to undertake the technical work or the investment involved. For other reasons also, investment in modernisation will be a necessary part of the industrial development programme in later years. New inventions and processes are flowing continuously from research institutions and practical production experience, and industrialists must acquire the habit of keeping their equipment and methods continuously up-to-date in the interest of larger production and lower costs.

51. A second type of new investment in the programme is investment to balance existing facilities. Examples are numerous. Several textile mills need air-conditioning, combing, bleaching, and dyeing equipment in order to make the best use of the spinning and weaving equipment which they already have. The country should also undertake the production of some of the equipment for the textile industry, all of which at present must be imported. There is need for small-job machine shops, and foundries to service larger plants, each of which now has to install its own machine shop requiring a much larger total investment. More packaging materials should be manufactured within the country. All these investments will yield high returns and save considerable foreign exchange.

52. The third type of new investment is the establishment of new, independent plants. At the present stage of the country's development the most promising opportunities are those which depend primarily on raw materials that are available locally in good quality and at competitive prices. The element of local raw materials has

clearly been of very great influence in our industrial development in recent years ; the largest investments have been made in those industries in which raw materials were most easily available. It is roughly estimated, for example, that about 500 million rupees were invested in cotton textile plants from 1948 to mid-1955 : the investment in jute manufacturing started somewhat later, but had reached a total of perhaps 190 million rupees by the end of 1955.

53. Particularly promising as an opportunity for new investment is production from raw materials that are available but have not been put to use. Pulp for the manufacture of paper and paperboard can be produced from wild grasses. Such products can be made, in larger quantities, from bamboos. Tanning extract can be made from mangrove trees. Tung oil can be produced not only from nuts gathered on tea estates but also from new plantations of tung trees. Glucose can be made from starch produced from corn. In many cases, too, goods can be produced from industrial by-products that now go to waste. Paper can be made from bagasse, and power alchohol from molasses. Residual oil can be recovered from oil cake. Rayon yarn and cellophane can be produced from cotton linters. Gelatine can be produced by tanners, and various chemicals by paper mills. Cosmetics can be made from wool grease, plastics from sawdust, caffeine from tea dust, insecticides from powdered tobacco, and starch from broken rice. Utilisation of such materials, where they can be exploited economically, can contribute substantially toward increasing the nation's output and improving its balance of payments.

54. Looking ahead, according to the estimates of costs and returns available to us, among the most promising returns which are in sight for any new investment in the country are those connected with the use as fuel, or as raw material for chemical conversion, of the natural gas that has been found at Sui. The gas pipelines from Sui to Karachi, and from Sui to Multan and then on to Lahore represent very heavy investments. But as soon as the amount of gas transmitted reaches sizeable quantities the pipelines can deliver gas at a low cost and the resulting contribution to national income and savings of foreign exchange will be high indeed. Combining natural gas as fuel with the limestone and gypsum which are found amply in the country can give us very efficient cement plants, thus satisfying a large requirement for many development needs with a relatively small cost in foreign exchange. A third highly promising industry based on natural gas is the manufacture of chemical fertilisers, which can be made from the gas by very efficient processes, to satisfy the country's rapidly growing needs. Other promising industrial fields based on the use of local raw materials are jute manufacturing, sugar mills, and paper plants. The returns from investment in those areas promise to be attractive, though not as high as from investments based on natural gas. Together, these investments in industries based primarily on local raw materials account for the bulk of the proposed investment in new large-scale plants during the Plan period.

55. It is vitally important to realise, however, that it is not simply the existence of a local raw material which determines the desirability of investment, but also the quality of that raw material, its location, and the efficiency with which it can be manufactured into finished products. Thus it would be technically possible to manufacture motor spirit from potatoes or other agricultural raw materials, but the process would be expensive. The country can gain much more by putting its capital into other uses which will earn or save far more foreign exchange per unit of investment, and continuing to import motor spirit to meet its needs. The question is not, therefore, solely whether raw materials are available locally, but whether products can be manufactured from those raw materials efficiently in relation to other possible investments. This point is sometimes overlooked in the natural desire to produce all the products the country needs within its own borders.

56. There are also promising investment opportunities in industries which use mainly imported materials in raw or semi-finished form, and assemble or fabricate them in the country into finished products. The gains in such cases, in comparison with the alternative of importing the finished products, come largely from savings on transport costs,

and from using local workers rather than paying for the labour of workers in other countries. There can often be a succession of steps in such cases, starting with the import of all the finished parts and simply assembling the product here, moving on to the manufacture of the simpler components here, and so on until possibly only the raw materials which cannot be found locally are imported, and the rest of the work is all done locally. The assembly and manufacture of radios is an example. Kits of components are now imported and assembled here, which can save considerable foreign exchange. The next step will be to manufacture the simpler components, such as cabinets ; later it will be possible to make the simpler electrical parts—such as chokes, coils, and condensers—using imported raw material where necessary. Each step can add to the value of product produced in the country, to the savings of foreign exchange, and to the employment opportunities. There are many other examples of the same type of industrial development. In the pharmaceutical industry, for example, it will save very sizeable amounts of foreign exchange simply to produce bottles and labels in the country, rather than having to import them. Successive steps might be the local manufacture of filler materials, then some of the simpler chemical products, and so on. Many other examples could be cited.

57. In these cases, however, the economic efficiency of each step must be weighed. The country could, for example, start out now to manufacture large turbines for electric power stations, importing only the raw metal. This would be an extremely costly operation, however, requiring a very heavy investment and yielding a very low return. There are many alternative investments available at present which will be far more productive, and the manufacture of heavy electrical equipment would not be a good use of our limited resources.

### Location of new capacity

58. In the earlier phase of industrialisation, industries have tended to congregate near a few main towns such as Karachi, Lyallpur, Narayanganj, and Chittagong. This has been natural because of the facilities and economies available at such places. Karachi, in particular, has figured prominently, due to the advantages of the port, the special facilities of industrial estates, close proximity to the centres of administration, and the presence of a large business class that settled there on migration from India. On purely economic grounds, new capacity should be installed where the costs of production and transport will be lowest. But location cannot be determined on economic grounds alone. In the interest of balanced regional development and social stability, it is desirable that industries should be more widely dispersed, to spread the benefits of employment and increased income over larger areas. Dispersal will lessen the magnitude and intensity of the social problems created when populations are moved from rural to urban areas, inadequately provided with public facilities.

59. The Government already exercise the power of determining the location of new industrial units. The PIDC has used its opportunities freely to locate new units in areas close to sources of raw materials such as Chandragona, Nowshera, and Daud Khel. More can be done, however, to encourage industries to spread out. The development of integrated systems of power supply, and the availability of Sui gas in extended areas of West Pakistan, could be utilised in support of such a policy. Consideration should be given, also, to the possibility of offering concessions in land, local taxes, and freight rates. If undue concentration of industry is to be prevented, the Central and Provincial Governments, local bodies, railways, and power authorities will have to follow appropriate policies.

### Regulation and control of industrial development

60. Under the Pakistan Constitution Act in force from 23rd March, 1956, industries have become a provincial responsibility, except " industries owned wholly or partially by the Federation or by a Corporation set up by the Federation ". We assume however

that the Development of Industries (Federal Control) Act, 1949 and the Rules issued under it continue to apply under Section 224 of the Constitution Act. Under the former Act all new industrial undertakings or expansions of existing undertakings likely to employ more than 50 persons must have specific authorisation from the Government. The basis on which the power of granting such authoritisation will be distributed between Federal and Provincial Governments is not relevant to the general problem of public control. What is relevant is that the provisions of this Act apply only to 27 industries listed in the Schedule to the Act. Applications are required to be submitted to the Director General, Supply and Development, to the Textile Commissioner, or to the Ministry of Agriculture according to the nature of the undertaking.

61. Under the Control of Capital Issues Act all issues of capital above 100,000 rupees, whether original or supplemetary, require approval by the Federal Government. The Government are able also to regulate the development of industries through import controls, which, as far as can be foreseen, will have to be retained indefinitely in order to make the best use of scarce foreign exchange resources.

62. These controls provide the Government with effective instruments for exercising decisive influence on the development and regulation of industries. The Federal and Provincial Governments might well consider whether the authority vested in them for granting permissions to set up new undertakings or to expand existing undertakings is sufficiently complete for aligning the course of industrial development with their plans. The need for obtaining government permission for new undertakings or expansions of existing undertakings should not be limited to 27 industries only.

63. These three separate types of control—over establishing or extending factories raising capital, and using foreign exchange—need to be co-ordinated to prevent anomalies which would give rise to uncertainties and grievances. It would be improper to grant permissions to establish plant which could not be honoured by the Capital Issue and Import-Control authorities, or to authorise capital issues which could not be backed by the necessary allocations of foreign exchange within a reasonable time. It seems desirable that one authority should be responsible at the Centre and one in each Province for co-ordinating the controls over industrial development. Co-ordination is also necessary between the Federal and Provincial Governments. We emphasise this because it is undesirable that the sanction of one authority should be used for applying pressure against another, or should give rise to justifiable grievances and to lack of confidence in the administration, but even more because without such co-ordination, maximum use of available resources at any given time in the desired directions would not be possible. It would also be an advantage if all entrepreneurs were able to approach a single public body for the necessary permissions and could look to it for support in their work, as part of the development plan.

64. In this connection, the question of the principles and procedures to be observed and the machinery to be used for selecting parties for setting up new units is very important and deserving of careful consideration. With a plan in being and fixed targets to be achieved, it would be necessary for the Government, acting through the proposed Industrial Planning and Development Department, or through some other suitable agency until that department is organised, to take the initiative themselves in selecting the promoters. They should not wait until applications are received, nor should they grant permissions to more parties or for larger capacities than are needed.

65. It is undoubtedly of some importance that new tasks should be assigned to those who can be trusted to accomplish them successfully. But this principle cannot be carried to the extent of allowing economic power to be concentrated in the hands of a few families or a few firms or individuals, whatever their resources and organising capabilities. This would be totally inconsistent with declared national policy of fostering conditions in which equality of opportunity prevails and economie power is widely distributed. In principle

the distribution of economic power must be pushed to the farthest limit beyond which it ceases to serve the public good. In practice it is not easy to recognise and observe this limit. At the minimum, deliberate and consistent efforts should be made in relation to new industrial undertakings to discover and encourage new entrepreneurs in the effort to disperse control and ownership. To select those who already have enough on their hands is to judge others as incompetent. The soundness of such a judgment is clearly disproved by the fact that most of the successful industrial entrepreneurs had little industrial experience a few years ago. It is necessary that a procedure should be laid down for the selection of parties for undertakings new ventures. In important cases the selections should be approved finally by the Cabinet or a sub-committee of the Cabinet appointed for this purpose.

**New investment in large-scale industries**

66. Chapter 21 presents in detail the proposed new investment in individual large-scale industries, and the purposes for which this investment would be intended. These proposed investments are summarised in the following paragraphs. It would be well to emphasise again that while these proposals are based on the best information we have been able to obtain, and have been cross-checked by discussion with representatives of the various industries, there will no doubt have to be changes in detail as more information becomes available during the Plan period.

67. There were on 30th June, 1955, about 3000 factories employing more than 20 workers and using power, with a total investment in fixed and working capital of about 2300 million rupees. The expansion programme proposed under the Plan calls for investing another 2300 million rupees of which 2000 million rupees would be for new capacity and 300 million rupees for modernisation. Of these amounts, it is expected that about1400 million rupees would be private investment, and 900 million rupees would be public investment through the Pakistan Industrial Development Corporation. The foreign exchange component of the total investment is estimated to cost about 1300 million rupees.

68. The following table summarises the investment for each major industrial group in 1955 and the additional investment to be made during the Plan period.

TABLE 3

*Investment in large-scale industry*

Million rupees

| Industry Group | Capital investment by mid 1955 | Additional investment 1955-60 |
|---|---|---|
| Agricultural processing ... ... ... ... ... ... ... | 312 | 115 |
| Food products industries ... ... ... ... ... ... ... | 265 | 294 |
| Textiles and clothing ... ... ... ... ... ... ... | 796 | 470 |
| Wood and paper products ... ... ... ... ... ... ... | 91 | 179 |
| Leather and rubber products ... ... ... ... ... ... | 56 | 18 |
| Chemical industries ... ... ... ... ... ... ... | 166 | 246 |
| Brick, glass, cement, ceramics ... ... ... ... ... ... | 88 | 130 |
| Engineering industries ... ... ... ... ... ... ... | 182 | 200 |
| Electrical industries ... ... ... ... ... ... ... | 27 | 34 |
| Gas transmission and distribution ... ... ... ... ... ... | 84 | 214 |
| Other industries ... ... ... ... ... ... ... | 193 | 364 |
| Total ... | 2260 | 2264 |

69. Of this estimated additional investment of 2264 million rupees, about 1200 millions will be in producer-goods industries as against 1064 million in consumer-goods industries. This will raise the proportion of investment in producer-goods industries from an estimated 40 per cent of total industrial investment at the beginning of the Plan period to an estimated 47 per cent at the end. Major investments in producer-goods industries will be in cement, heavy chemicals, fertiliser, newsprint, pig iron and shipbuilding. In addition to the investment in heavy industry included in this chapter, the development Plan includes investment in manufacturing capacity for railway carriages and wagons (included in the Transport Chapter) and investment in the installation of power plants (included in the Chapters on Water and Power Resources).

## Executing the industrial development programme

70. The industrial development programme which has been summarised in this chapter is of very great importance to the country's welfare and progress. To execute this programme will require extensive and co-ordinated action by both government and private enterprise. In most fields of industrial development it is not necessary for government to make detailed decisions on how to expand and modernise individual industrial establishments ; these are decisions which can be made with more precision and fuller awareness of all the factors by the businessmen directly concerned. Nevertheless Government must in present circumstances play a commanding role in assisting, guiding, and controlling industrial development. For the most part this will be done through import and capital issues controls, tax incentives, and other devices for guiding private investment into channels which will best serve the country's welfare. In some cases it is necessary for the Government to establish industrial units either temporarily or permanently under its direct control. Furthermore, the Government must provide a wide range of supporting services—education, finance, research, advice—which are of great importance to industry both large and small.

71. The following paragraphs discuss the role of government in encouraging, controlling, and supporting industrial development. We wish to emphasise, however, that the programme we are proposing cannot succeed without a very high degree of initiative and energy on the part of private businessmen. The targets we have proposed for private industry represent quantities of production which we believe are needed and can be wisely undertaken in the country. These targets will not be achieved, however, unless businessmen undertake the necessary detailed studies and make the necessary investments. Furthermore, while direct government investment in industry can be assured by government action, private investment will depend upon the vigour and initiative of entrepreneurs.

72. We are confident that private enterprise will not fail in performing its responsibilities under the Plan. In recent years private businessmen have given a good account of themselves in accomplishing the tasks undertaken by them and displayed considerable energy, initiative, and organising ability under trying and difficult conditions. We believe they can give an equally good account in carrying out the new tasks under the Plan, but they will need the full support of the Government, and the administration. The private sector should be treated as an agency for carrying out specific tasks envisaged under the Plan and thus fulfil an essential social purpose. The administration should be helpful in its attitude and extend its goodwill and support instead of being a dispenser of favours. This need is even more pronounced in East Pakistan than in West Pakistan. The difficulties in the way of private industrialists are greater in the East and the administration there has to be correspondingly more helpful and also more willing to take direct initiative.

73. From the beginning the Government has actively stimulated industrial growth. The First Industries Conferene was called in December 1947 and attended by representatives both of government and of private business. The result was a basic Statement of

Industrial Policy which still stands, virtually unaltered, as the Government's working policy. This policy statement sets forth the intention of the Government to plan the development of certain important industries, and to assist their growth through education, and training, research, financial assistance, protective tariffs, tax incentives, encouragement to foreign capital, and other means. It is avowed national policy to foster the private ownership of industries and to avoid direct government action except when necessary to promote development, as through the PIDC. This policy has been accompanied by a rapid rate of growth since independence and should not in our view be changed.

74. The Government have granted liberal tax incentives to industrial investment, in three principal ways :

(*a*) High depreciation rates have been allowed for tax purposes under various arrangements, permitting industrialists to recapture their investment in plant and machinery more rapidly than the normal rates would permit ;

(*b*) Profits of new undertakings have been free of income and super-taxes to the extent of five per cent of the capital invested for an initial period after the investment is made ;

(*c*) Investments made by individuals in new industrial undertakings have been exempted from income and super-taxes up to certain percentages of personal income.

75. No estimates have been made of the effects of these tax incentives on the supply of capital for industrial investment, but they have undoubtedly given strong impetus to such investment by individuals, and have made available to companies large tax-free funds which could be re-invested in expansion. As was to be expected, it has been possible for firms and individuals to plough back the profits of initial investment into successively larger enterprises. We have discussed this matter in Chapter 9 and suggested that while a continuation of tax incentives is desirable so long as they result in real additions to industrial investment, their application in the future should be made selective in order to stimulate development in the desired direction, and to avoid costly incentives which do not serve any important purpose.

76. As an additional source of capital for industrial investment, the Government established in 1948 the Pakistan Industrial Finance Corporation. We discuss in Chapters 10 and 11 the problem of providing finance for industrial investment during the Plan period.

77. The Protective Duties Act of 1950 established a Tariff Commission to recommend protection to domestic industries for temporary periods to help them become established and reach a competitive level of efficiency. Some degree of protection has been granted in more than 30 cases, ordinarily for periods of two to three years after which further claims are to be reviewed. No thorough study has been attempted of the effects of the protection which has been granted. It has undoubtedly assisted some local manufactures by raising local market prices, but the competition of imports has clearly been affected much more strongly by the strict controls on imports imposed not for protection but for balance of payments reasons.

78. Government controls over imported goods have certainly exercised more influence on industrial development than any other measure of Government policy, particularly since the open general licence was withdrawn in late 1952. These controls have had at least three types of result.

79. First, the Government has sharply limited the import of consumer goods and emphasised, so far as possible within the limits of the available foreign exchange, the import of raw materials and machinery and equipment for local production. The shift in the proportion among private imports has been marked. In 1951-52 about 53·1 per cent of all private account foreign exchange expenditure was for the import of industrial raw materials, capital goods, and spare parts, as compared with 75·4 per cent in 1954-55. This deliberate policy on the part of the Government has of course exercised a powerful effect in favour of industrial development.

80. A second effect of the strict import controls has been to leave many importers with unused capital, owing to the sharp cuts in import of consumer goods, and some of them have turned to industrial investment for the first time. This indirect effect of the import controls has clearly been favourable to industrial development.

81. The third effect of import controls has not been so favourable. Foreign exchange has not been available in sufficient quantities to permit the import of all the raw materials, capital goods, and spare parts that could have been used, and even though Government policy was far more favourable to such items than to consumer goods, the stringency of exchange has been such as to leave many demands unsatisfied. This has meant that many investment plans have had to be postponed or shelved because licences for plant and equipment could not be granted. It has also meant that it has not been possible to import all the raw materials which have been needed to operate existing plants at full capacity. This has resulted in a great deal of inefficiency in production, with plant and machinery less than fully used, extra costs for frequent stopping and starting, and other effects contributing to low volume and high-cost production. This situation has not been favourable to further investment in certain fields.

82. The magnitude and complexity of the problem of licensing the import of industrial equipment and materials cannot be over-emphasised. Since the foreign exchange stringency will undoubtedly continue for some time, it seems that import licensing is a continuing necessity. Considering the pervasive influence of licensing on every aspect of the industrial economy and development—its impact on industrial investment, its grip on established manufacturers who depend on raw material imports, its possible susceptibility to influence—considering these influences for good or bad, the import licensing system must be the best that can possibly be devised. Certainly the present system leaves much to be desired and improving it should be an undertaking of high priority.

83. It is essential that the policy on import licences for capital equipment should correspond to the Government's industrial development programme. This is a field in which the Government can intervene most directly to influence the size and pattern of development; without such co-ordination there would be grave dangers of waste and frustration.

84. The problem of import policy for raw materials and replacement parts is more involved and difficult. No one knows precisely what the country's industrial requirements are, what part of these requirements are reasonable in view of the need for austerity of production of non-essential goods, or which of these requirements could be supplied from domestic sources. The Ministry of Industries is now attempting a survey of requirements, the results of which should improve the position. A procedure for keeping this information up-to-date is also essential.

85. Because of the scarcity of foreign exchange, the inevitability of its distribution on the basis of a priority system, and the inadequacies of import control administration, industry has suffered in recent years. The imports of industrial raw materials and repalcement parts have been insufficient, and often small and fitful. The plants have not worked to their full capacity or on regular production programmes. Their overheads and unit

costs of production have consequently been high. The operation of existing industrial units and the efficient maintenance of plants must be regarded as a high-priority claim to the use of foreign exchange resources.

The allocation of foreign exchange for the import of raw materials and replacement parts is governed by the following main principles :

(*a*) Repair and replacement parts should be allowed to the full extent of proved need.

(*b*) Raw material for producer and essential consumer goods industries should be allowed similarly to the full extent.

(*c*) Other consumer goods should be allowed on an austerity basis.

While this system of priorities is sound, it has not been fully applied because of scarcity of foreign exchange, the lack of reliable information about actual needs, and the desire of the administration to avoid accusation of partiality.

86. The position should be alleviated if not completely rectified in the next few years. In projecting the requirements of foreign exchange in the Plan period we have assumed that the present basis for priorities will continue, and that every effort will be made to make them effective. So far as we can determine, an average of about 500 million (post-devaluation) rupees of industrial raw materials, fuels and replacement parts were imported in the trade years 1952—55. This level of imports is undoubtedly inadequate. Our estimates of requirements provide for increasing imports of these items from an annual average of about 500 (post-devaluation) rupees for 1952—55 to close to 800 million rupees for 1959-60. The availability of raw materials will be higher than these figures indicate since many materials which had to be imported in the past will be locally available in 1959-60. This is especially true of cotton and art silk yarns, heavy chemicals and paper. Consistent efforts to substitute local for imported materials by locating new sources or increased production by multiple-shift working should bring about a substantial improvement within the Plan period. The inquiry in progress in the Ministry of Industries should provide a realistic estimate of the raw material and spare parts requirements of industries and enable allocations of foreign exchange to be made in closer relationship to genuine needs.

87. It is one of the main objectives of the Plan that the foreign exchange position should be improved as rapidly as possible so that the country should be able to finance a sizeable development programme from its own resources. A diversified but balanced programme of industrialisation, including the creation of new capacity on a selective basis, is essential in pursuance of this objective. We understand the view often voiced in business circles that all new industrial capacity should wait till a surplus of foreign exchange is available after meeting in full the requirements of existing industries. The view is based on an inadequate appreciation of the needs and potentialities of development. It is essentially a short view which, if accepted, would prolong indefinitely the period needed to improve the balance of payments position in order that the country should be able as soon as possible to provide from its sources the foreign exchange required for meeting its ordinary as well as development needs. Some degree of austerity in the present is fully justified as the price of future benefit.

88. We expect that the projections we have made of foreign exchange requirements will prove adequate to accommodate imports of raw materials and spare parts to meet all genuine requirements on the basis of the priorities we have mentioned above. They have been made on such information as has been available, and are subject to revision and to amendment as more and better information comes to hand.

89. Partly because of the shortage of foreign exchange, but also because of its inherent advantages, the Government have from the beginning followed policies designed to encourage private foreign investment in Pakistan. Such investment not only provides a means

to finance the import of capital goods, but also frequently brings with it valuable experience and access to technical and managerial skills. Government policies to encourage foreign investment have included guarantees of repatriation of profits and capital investment, assurances against loss from nationalisation, and permission for foreign owners to hold a majority of the capital stock in Pakistan companies.

90. These policies seem sound and should be continued, though it would be unrealistic to expect large amounts of foreign private investment to be made during the Plan period. In the past, foreign investment has been devoted primarily to the exploitation of raw materials which are now being developed by local interests. On the other hand, a compensating amount of foreign investment in processing and manufacturing industries cannot be expected because the opportunities in such industries are likely to be more attractive in the investors' home or colonial countries than they are here—a situation not true of Pakistan alone, but of most under-developed countries. Nevertheless, we expect a steady though small flow of foreign investment into the country, and a fairly large increase of investment in exploration for oil. In addition, organised efforts must be made to attract foreign investment. Effective arrangements should be made to bring to the notice of potential investor groups and individuals in countries with surplus capital the opportunities of investment in Pakistan. Development studies of individual schemes made by specialists would provide useful material for this purpose. Arrangements should exist to promote contacts between Pakistan entrepreneurs entrusted with specific tasks, and likely investors abroad. The potentialities of new types of arrangements with foreign suppliers of plant and machinery should be fully explored under which the sales of their goods are combined with participation in capital and responsibility for successful installation and operation of the plant for periods which would make such arrangements worthwhile to both parties. This type of arrangement would be particularly suitable for large capital-intensive undertakings offering prospects of steady demand for the manufactures of the foreign participants.

91. The general measures discussed in the preceeding paragraphs are necessary, but they are not sufficient to ensure that the specific tasks envisaged in the field of industry to fulfil the Plan and achieve the desired targets will be duly taken in hand and completed. The programme we contemplate is large and varied ; and its implementation would need the fullest encouragement and utilisation of the potentialities of the public and private sectors. In the public sector an effective agency for executing desired programmes has been built up in the form of the PIDC, which must be improved, expanded and perfected. This Corporation is an instrument for carrying out specific tasks assigned to it, but not for the comprehensive planning and development of industry. Nor has it any responsibility towards the private sector. There is no organised centre for the planning of industry ; for examining, studying, and regulating its policies ; for distributing the programme between the private and public sectors ; for extending to the private sector necessary technical aid, and for assisting it in solving its many problems in such matters as finance, land, raw material, spare parts, transport, import licences, and the like, which hamper its operations. In our recommendations on planning organisations we have stressed the need of establishing planning groups in all Ministries and Departments where they are needed, such as Industry and Agriculture. The need of such an organisation is clear and urgent in industry, and has been brought home to us forcibly in the course of our work.

92. We accordingly recommend the creation of an Industrial Planning and Development Department in the Central Ministry of Industries, and as soon as possible, of parallel organisations in the two Provinces. In the Centre the nucleus for this organisation should be formed by splitting off the Development part of the Directorate of Supply & Development, leaving the supply function as a separate operation to be organised as a business-like government purchasing service for the Centre only or for the Centre as well as the Provinces,

as may be decided. This step is necessary to free the officials concerned with planning and development from the narrower but very heavy load of routine purchasing activity, which pushes planning and development into the background.

93. This organisation should be staffed with technically-qualified men : scientists, engineers, technologists and economists, though a few men with general administrative experience and capacity would be needed to deal with issues of general policy, and to ensure the efficient working of the organisation. Essentially, however, it should be viewed as a technical organisation and built up as such. A steady programme of staff development should be started immediately, and once it has been brought to a minimum level of strength and efficiency at the Centre, it should assist in the formation of similar centres in the provinces. They will all be needed to enable the Central and Provincial Governments to discharge their large and growing responsibilities towards industry, whether in the public or the private sector.

94. The Industrial Planning and Development Department would be concerned with the following major functions :

(*a*) To conduct the necessary industry surveys in order to maintain a continuously up-to-date set of plans and programmes for the development of all important industries in the country, large and small.

(*b*) To provide technical advisory services both for the establishment of new plants and for improving the operations of existing plants, either directly with its own staff, supplemented by experts provided by foreign aid agencies, or through encouraging the provision of these services by others, such as the Productivity Centre.

(*c*) To advise the Government in selecting private firms or individuals for specific industrial projects needed to give effect to sanctioned industrial plans and targets.

(*d*) To extend whatever assistance is needed by private parties selected for specific tasks to fulfil them successfully. In a way the Government should also perform services similar to those rendered by consulting firms ; either directly with their own staff, supplemented with foreign experts whose services are provided by foreign aid agencies ; or by facilitating agreements between private Pakistani interests and foreign consulting firms ; or by obtaining the services of foreign experts for employment with private parties, while remaining attached to the Government.

(*e*) To present the interests of industrial development to other government organisations concerned with import controls and allocations, the provision of fuel and power, industrial finance, technical education and other matters of importance to industry.

(*f*) To stimulate and guide industrial research—on markets and consumption, on processes and methods, and on materials.

95. Private groups entrusted with new projects should be selected carefully in accordance with prescribed policies of the Government, but after a selection has been made, the Government must take the utmost care to see that every assistance is afforded to the organisation concerned. The realisation of the sanctioned Plan will present problems of all kinds and the Government should develop a kind of partnership with the selected parties to secure the accomplishment of desired tasks. If the private sector fails in any respect because of shortcomings which could be remedied by administrative action, the Government must be responsible for the failure in the same way as for the failure of an undertaking in the public sector. An attitude of detachment or patronage would be mistaken and risky. The Government must recognise their full responsibility for the fulfilment of the Plan, and face in a spirit of partnership the tasks belonging to them under a well-devised scheme

of responsibility distributed between the public and private sectors. With a national plan of development in action, the distinction between a scheme undertaken in the public sector and schemes undertaken by the private sector is one of the agency employed, not one of desirability or essentiality. All of them must be recognised as essential national enterprises ; the distinction now often made in practice in the granting of licences and other facilities is unfair . If at any given time priority considerations have to prevail, distinctions should be made on other essential grounds and not on the basis of agency employed.

96. Our programme includes a provision of nearly 300 million rupees for the improvement and modernisation of a large number of industrial units. Special action would be needed to prepare and carry through the schemes of modernisation appropriate to each case. A considerable amount of technical and administrative work would be involved. The owners have to be convinced that the schemes proposed would be beneficial to them. Facilities would have to be provided to enable them to implement the schemes efficiently and speedily. Their difficulties would have to be studied and ways and means devised to overcome them. The Industrial Planning and Development Department must be assigned the responsibility of facilitating, supervising, and implementing this programme. The part to be played by them would be determined in each case by the status, attitude, and resources of the private owner concerned.

97. We recognise that modernisation will present more serious problems than the establishment of new capacity because in the latter case it is open to the Government to nominate by deliberate selection the party most likely to be able to accomplish the task. We must therefore reckon on the possibility of delays in the achievement of the programme, and its extension into future Plan periods. Schemes for the creation of new capacity should be kept ready to take advantage of any available resources.

98. The Industrial Planning and Development Department will in part be rendering services which in advanced countries are performed by consulting firms. It should be entitled to recover the cost incurred for services rendered on a no-profit and no-loss basis. We contemplate that in due course of time these duties should be transferred to one or more separate organisations as a step towards the creation of consulting organisations in the country, to be fostered as an essential component of the industrial planning structure.

99. The Industrial Planning and Development organisation should be concerned with small as well as large-scale industries, but separate and special organisations are necessary to promote the development of small-scale and cottage industries. At present the Small Industries Corporation is in existence, though its programme is only a small part of what is needed for a full-scale attack on the problems of small business. The Small Industries Corporation and the part it will play in implementing the development Plan are discussed in Chapter 22.

### Direct government investment in industry

100. The Government's direct investment in industry has taken place in recent years primarily through the Pakistan Industrial Development Corporation. In addition, government manufacturing enterprises exist in the fields of military ordnance (not considered as part of the development programme), railway carriages and wagons (discussed under Transport), and telephone equipment and line stores (included under Communications).

101. The Government has also assisted industry by setting up industrial trading estates in several places. The purpose is to provide entrepreneurs with land already prepared with roads, water supply, power, and rail sidings at reasonable prices. This facilitates establishing new factories and reduces the investment that would otherwise be required if such utilities had to be supplied by each factory separately. Experience with the Sind and Landhi industrial estates at Karachi has demonstrated their effectiveness as an

aid to industrial development. Further government investment in industrial estates both for large-scale and small-scale industries is expected during the Plan period. We think, however, that there will be need in the country for more schemes of industrial estates than we have received and included in the Plan. Additional schemes should be prepared and kept ready for implementation when the need is felt and the necessary resources become available. This matter is further discussed in Chapter 21.

102. We are proposing a very large programme for execution by the PIDC during the Plan period. The total investment for new capacity in enterprises in which the PIDC is expected to assume leadership will be about 1208 million rupees, of which we have assumed about 326 million will be provided by private investors and 882 by the Government. This represents more than twice the total investment, and more than three times the government investment, in all the 30 PIDC projects undertaken before the Plan period began. When considered in addition to the burden of operating completed establishments, this programme assumes proportions that cause some misgivings.

103. The recommended PIDC programme is composed of about 25 new projects ranging from pharmaceuticals to pig iron. Details of this programme are presented in Chapter 21 which shows the large scale industry development programme in detail. We may note at this point that, of the total investment of about 2270 million rupees forecast for large-scale industry during 1955—60, slightly over half will be in industries entrusted to the PIDC. Major enterprises proposed for the PIDC include : additional jute looms, sugar, cement, fertilizers, newsprint, gas transmission and distribution, card and strawboard, hardboard, pharmaceuticals, DDT, caustic soda, shipyards, and pig iron. Of the total Government funds to be invested through the PIDC about 450 million rupees, or slightly over half, is designated for East Pakistan and about 432 million rupees, or slightly less than half, is for West Pakistan.

104. The PIDC has been markedly successful in supervising the preparation of engineering plans and designs and the construction of plants. A number of very sizable enterprises have been established rapidly and with reasonable efficiency, and the Corporation has proved its worth in this regard. Its form of organisation has given it a good deal of freedom to hire staff and make operating decisions without the customary detailed procedures and controls that apply to ordinary government departmental operations. On the whole, this degree of administrative freedom has been well used and its continuation is warranted.

105. As the Corporation's activities have grown, however, it has encountered new problems which have not been adequately solved. Some of these stem from the fact that the Corporation has been given responsibility for more and more fields of activity and for more and more units. The Corporation is necessarily large, it has accomplished its tasks successfully, and has still larger tasks to perform in the future. It must not, however, be allowed to become unwieldy and inefficient.

106. A second type of problem arises because the Corporation has finished the construction of a number of industrial establishments, and is now facing the task of operating them and distributing and marketing their products both domestically and abroad. Operating and marketing problems are of a very different nature from those of engineering design and construction, and require a different range of skill and different organisational arrangements and systems of control.

107. A third type of problem faced by the Corporation relates to policy research and planning. At present the Corporation's plans look ahead ordinarily for only two or three years. It badly needs an economic staff to assist the Board of Directors in analysing current policy issues, the results of past operations, and future plans. The Corporation also should prepare plans for a longer period in advance, in order to give the Board and the Government a better basis for decisions on the future scope of the Corporation's work.

108. In view of the number and magnitude of these problems, we strongly recommend that the Corporation should conduct a thorough review of its activities, organisation, and methods of doing business. It would be well to obtain expert assistance in making such a study of organisation and management—assistance preferably from men with experience in some of the large and diversified undertakings in other countries.

109. The PIDC performs for the country the function of constructing new industrial units and establishing them as going concerns in certain cases in which private enterprise is not forthcoming. Once the industrial units are established private owners are given the opportunity to purchase the Government's share in the ownership. Eventually therefore the units established by the PIDC should all be privately owned ; it could be said that one measure of the success of the Corporation is how rapidly and how completely it is able to divest itself of its holdings. Frequently this is not an easy task, as the Corporation by its nature embarks on some projects which might not for some years reach a condition of profitability by the usual commercial standards, and which might not therefore attract private buyers. Furthermore there are cases in which sale to private owners might, unless very careful safeguards are established, result in monopoly conditions to the detriment of consumers. Nevertheless temporary Corporation ownership of industrial plants should remain the cornerstone of Government policy on direct investment in industry. Not only is this in keeping with the basic attitude of the country towards private enterprise, but it is necessary also to prevent the Corporation from becoming an excessively large holding company for a large part of the country's industry.

**Results of the industrial programme**

110. Table 4 shows the effect of the development programme on investment and capacity in major industries. It includes all those that are expected to have an investment, by 1960, of more than 35 million rupees. The programme will leave the cotton textile and jute goods industries at the head of the group in terms of capital invested, but will increase the relative importance of sugar refining, gas transmission and distribution, cement manufacturing, ship-building, and fertiliser production. It will increase the capacity of the jute goods industry by three-quarters. It will double capacity in sugar, cigarettes, and cement, and quadruple capacity in shipbuilding and caustic soda. It will provide capacity where none excited before for the production of fertiliser, card and straw board, iron and steel, newsprint, and rayon and cellophane.

TABLE 4

*Investment and capacity increase*, 1955—60 *for industries in which capital investment will exceed* 35 *million rupees by* 1960.

| Industry | Investment | | | | Capacity | | | |
|---|---|---|---|---|---|---|---|---|
| | Capital invested(3) 1955 (Rs. Million) | Capital invested 1960 (Rs. Million) | Rank in Group(1) 1955 | Rank in Group(1) 1960 | Units | Capacity 1955(3) (In units shown) | Capacity 1960 (In units shown) | Per cent Increase in Capacity 1955—60 |
| Cotton textiles ... | 530 | 781 | 1 | 1 | Million spindles | 1·60 | 2·05 | 28 |
| Jute goods ... ... | 186 | 371 | 2 | 2 | Looms ... | (2)<br>7,000 | 12,000 | 71 |
| Cotton ginning ... | 134 | 219 | 3 | 5 | Million bales ... | 2·0 | 2·25 | 13 |
| Edible vegetable oils ... | 105 | 123 | 4 | 9 | Tons ... | 220,000 | 220,000 | *Nil.* |
| Medium and light engineering. | 104 | 147 | 5 | 7 | Rs. million ... | 130 | 153 | 17 |
| Jute baling ... ... | 88 | 90 | 6 | 11 | Million bales ... | 7·0 | 7·0 | *Nil.* |

(1) In order of total productive capital invested.
(2) These were looms on hand. Many were not installed, and some of those installed were not operating in 1955.
(3) Taken from table 1, Chapter 20.

TABLE 4—*contd.*

| Industry | Investment | | | | Capacity | | | |
|---|---|---|---|---|---|---|---|---|
| | Capital invested (3) 1955 (Rs. Million) | Capital invested 1960 | Rank in group (1) 1955 | Rank in group (1) 1960 | Units | Capacity 1955(3) (In units shown) | Capacity 1960 (In units shown) | Per cent increase in Capacity 1955-60 |
| Sugar ... ... | 87 | 325 | 7 | 3 | Tons ... | 115,000 | 235,000 | 104 |
| Sui gas transmission ... | 84 | 244 | 8 | 4 | ... | ... | ... | ... |
| Cement ... ... | 66 | 158 | 9 | 6 | Million tons ... | 0·67 | 1·28 | 91 |
| Printing, writing and wrapping paper. | 60 | 60(4) | 10 | 17 | Tons ... | 30,000 | 42,000 | 40 |
| Fertiliser ... ... | 56 | 133 | 11 | 8 | Tons ... | *Nil.* | 162,000 | All new capacity. |
| Woollen textiles ... | 50 | 71 | 12 | 14 | Spindles ... | 30,790 | 47,040 | 53 |
| Tea manufacturing ... | 50 | 61 | 12 | 16 | Million lbs. ... | 55·0 | 60·0 | 9 |
| Cigarettes ... ... | 49 | 80 | 13 | 12 | Million cig. ... | 4,500 | 10,000 | 120 |
| Printing & publishing ... | 39 | 57 | 14 | 18 | Rs. million ... | 27·0 | 32·4 | 20 |
| Shipyards ... ... | 35 | 118 | 15 | 10 | Rs. million ... | 30·0 | 127·2 | 324 |
| Card and Straw Board ... | 26 | 76 | 16 | 13 | Tons ... | *Nil* | 35,000 | All new capacity. |
| Leather tanning ... | 24 | 37 | 17 | 22 | M. Sq. ft. upper<br>M. lbs. sole ... | 17·0<br>16·0 | 19·9<br>16·0 | 17<br>*Nil* |
| Steel re-rolling ... | 18 | 36 | 18 | 23 | Tons ... | 125,000 | 155,500 | 24 |
| Iron & steel ... ... | 5 | 55 | 19 | 19 | Tons ... | *Nil* | 15,000 | All new capacity. |
| Caustic soda ... ... | 3 | 44 | 20 | 21 | Tons ... | 6,000 | 26,000 | 333 |
| Newsprint ... ... | *Nil* | 107 | 21 | 10 | Tons ... | *Nil* | 123,000 | All new capacity. |
| Rayon & cellophane ... | *Nil* | 70 | 22 | 15 | Tons ... | *Nil* | 5,400 | All new capacity. |
| Sui gas distribution ... | *Nil* | 54 | 23 | 20 | ... ... | ... | ... | ... |

(4) Investment for increased capacity is included in cost of newsprint plant.

111. We can now give some general estimates of the aggregate results to be achieved by the large-scale industrial development programme during the Plan period. The most important of these are the effects on production, national income, employment, and the balance of payments. A summary of the increase in production in large-scale industry and value added is given in Table 5. This shows an increase in value of product from about 3411 million rupees in 1954 to an expected 6266 million rupees in 1960. Of this increase, an estimated 774 million rupees is due to increased utilisation of existing capacity

and 2081 million rupees is due to new capacity brought in by the investment programme. The resulting increase in gross value added is 802 million rupees. This is also a gross measure of the increase in national income resulting from the large-scale industry investment programme. We wish to emphasise that these figures are rough estimates, meant only to give an idea of the order of magnitude of the value of production that can be expected from large-scale industry. As a result of the proposed development programme and the fuller use of existing capacity, production in large-scale industry in 1960 should increase by about 80 per cent over the level of 1954. Much of this increase will come in the major sectors of PIDC activity. Organised factory production should contribute a substantially larger share to the national income of Pakistan.

### TABLE 5

*Result of Large-scale industry development programme*

(Million Rupees)

| Sector | Production 1954 (1) | | Increase in value of production, 1954—60 (4) | | | Production 1960 | | |
|---|---|---|---|---|---|---|---|---|
| | Value of production(8) | Gross value added(2) | Due to increased utilization of existing capacity(3) | Due to investment programme (5) | Total increase | Value of production | Gross value added | Increase in gross value added 1954—60 |
| Agricultural and food products ... | 1,882 | 376 | 188 | 404 | 592 | 2,474 | 396 | 20 |
| Textiles & clothing ... ... | 686 | 394 | 106 | 560 | 666 | 1,352 | 616 | 222 |
| Paper ... ... ... ... | 23 | 16 | 5 | 79 | 84 | 107 | 56 | 40 |
| Wood, leather, rubber ... ... | 173 | 92 | 104 | 19 | 123 | 296 | 101 | 9 |
| Chemicals ... ... ... | 100 | 49 | 50 | 145 | 195 | 295 | 118 | 69 |
| Natural gas transmission and distribution. | *Nil* | *Nil* | (6)<br>40 | (7)<br>40 | 80 | 80 | 77 | 77 |
| Non-metallic mineral products ... | 64 | 38 | 13 | 97 | 110 | 174 | 87 | 49 |
| Engineering ... ... ... | 146 | 66 | 102 | 195 | 297 | 443 | 159 | 93 |
| Other ... ... ... ... | 337 | 55 | 166 | 542 | 708 | 1,045 | 378 | 223 |
| Total ... | 3,411 | 1,186 | 774 | 2,081 | 2,855 | 6,266 | 1,988 | 802 |

(1) Taken from Table 2 above.

(2) Value of production *less* cost of raw materials and fuel.

(3) This increased utilisation will result primarily from an increased flow of imported raw materials and replacement parts, but also from better management and expanding markets. These are no more than rough estimates.

(4) In the case of a few commodities, prices rose after revaluation of the rupee to reflect the new CIF price of imports. To this extent, the increase in value of production will be partly due to price rises. In general, however, the increases in value have been calculated on the assumption of stable prices.

(5) Taken from Table 1 of Chapter 21.

(6) Sui—Karachi line for throughput of 70 million cu. ft./day.

(7) Sui—Lahore line for throughput of 70 million cu. ft./day.

(8) At *ex*-mill prices in 1954.

112. Direct employment in large-scale industry is expected to increase by about 200,000 persons as a result of the development programme. The accompanying Table 6, which does not include contract workers, shows that this increase will be largely in the class of skilled and semi-skilled workers.

TABLE 6

*Actual and expected employment levels in large-scale industry,* 1954 *and* 1960

| Class | Average employment level 1954-55 | Expected employment level 1959-60 |
|---|---|---|
| Professional (including engineers, scientists, administrators and managers) | 6,500 | 8,500 |
| Highly technical ... ... ... ... ... ... ... | 4,900 | 6,200 |
| Skilled and semi-skilled ... ... ... ... ... ... | 193,000 | 301,700 |
| Unskilled and clerical ... ... ... ... ... ... | 185,600 | 268,600 |
| Total ... | 390,000 | 585,000 |

113. The programme will also have considerable effect in the form of indirect employment; although this is not measurable. Thus, although the new cement plants will employ only a few hundred people, the new construction work undertaken with the readily available cement will employ thousands.

114. To calculate the net effect of the large-scale industry investment programme on the balance of payments, we note that the annual increase in value of product resulting from the new investment will be about 2080 million rupees, of which the import component will be about 830 millions, leaving a potential favourable effect on the balance of payments of 1250 million rupees. This effect will, however, not be realised, because some of the goods produced do not replace imports, and in the case of some consumer goods, there will be increased consumption due to increased availability. This is true especially of cotton, cloth, sugar and cigarettes. We estimate that the true net effect on the balance of payments would be about 750 million rupees. This estimate includes also about 225 million rupees in the value of processed cotton, tea, wheat and rice. Since the value added by ginning, blending, and milling is almost negligible compared with the value of the crop, these additions might better be credited to the result of agricultural investment. We can reasonably expect the potential effect on the balance of payments to be about 500 million rupees, which is an approximate measure of what the large-scale industrial investment programme will accomplish. This accounting is summarised below :

| | | (Million rupees) |
|---|---|---|
| Annual increase in value of product ... ... ... | | 2,080 |
| Less: | | |
| Import component of operation ... ... ... ... | 830 | |
| Increased consumption ... ... ... ... ... | 500 | |
| Agricultural processing industries... ... ... ... | 225 | |
| | | 1,555 |
| Net foreign exchange earnings and savings ... ... ... | | 525 |

This Rs. 525 million is the potential foreign exchange earnings and savings resulting from the increased capacity provided in the industry programme. It is not equivalent to the forecast of the foreign exchange balance made in Chapter 11, since that balance involves earnings and uses of foreign exchange other than those resulting from industrial development.

115. The proposed industrial development programme is expected to complete the process of making the country self-sufficient in cotton and jute textiles, sugar, edible oil, cigarettes, paper, newsprint, strawboard and hardboard, leather goods, sulphuric acid, soda ash, caustic soda, penicillin and many other chemicals and drugs, cement, a variety of electrical goods, and a large number of other items. It will be possible to meet the bulk of the country's requirements of fertilisers, woollen textiles, canned fruits and vegetables, rayon and cellophane, and hollow glassware. Natural gas will replace a large quantity of fuel that would otherwise have to be imported. Local manufacture of capital goods will be increased, and this will reduce somewhat the imports required for economic development in the future. Exports of jute manufactures will be increased greatly. Substantial quantities of cotton yarn and cloth will become available for export. In short, the country's dependence on imported goods should be considerably reduced, and export earnings increased.

116. The results of the small-scale industry investment programme are not as easily measurable as those of the large-scale programme. Physical results will be more difficult to see, because they will be spread over thousands of small units, and in most cases will represent modernisation and improved methods and larger working stocks rather than new plant. The Plan provides for improving the efficiency and output of many small-scale and cottage industries, such as *gur*, vegetable oil, salt, *bidi* making, hand-loom weaving, ready-made garments, knitted goods, sports goods, bamboo ware, furniture, footwear, brick and tile, pottery, soap, surgical instruments, cutlery, household utensils, umbrellas, textile dyeing and printing. The programme for developing small-scale and cottage industries includes the establishment of centres for training, management advice, and research; the provision of credit and special assistance with materials and marketing; increasing the efficiency of tools and equipment by such means as improved handlooms; and the provision of small-industry extension services particularly in connection with the Village Aid programme.

117. Table 2 of Chapter 22 shows a total production from small-scale and cottage industries in the year 1954 of about 4100 million rupees. An increase in the value of production of about 1000 million rupees may be expected by 1960 through the improved flow of raw materials and better utilisation of existing facilities. If the same ratio of production to investment prevails in 1960 as in 1955, perhaps another 1500 million rupees increase in production can be expected as a direct result of the investment programme, bringing the total value of annual production from small-scale and cottage industries to about 6600 million rupees by the year 1960. These are very rough estimates, but they serve to give an idea of the magnitude of potential production from small-scale industry.

118. Although the effect on employment levels in the small-scale sector will be greater perhaps than the direct result in the large-scale sector, there is no way in which it can be measured. In many cases increased production will come through fuller employment of the present work-force by working more hours per week rather than by bringing new people into employment.

119. In summary, the total development programme for both large and small-scale industry may be expected to increase the output of all industry from about 7,500 million rupees in 1954 to about 12,900 millions in 1960. The programme for large-scale industry alone should increase direct employment by about 200,000 jobs. It should result in a saving, by 1960, of more than 500 million rupees a year in foreign exchange.

# CHAPTER 21

# LARGE-SCALE INDUSTRY

## Introductory

1. The term " Large-scale industry " (1) refers only to factories and plants required to register under Section 2 (j) of the Factories Act, 1934, by virtue of having twenty or more employees and using power. Industrial investment in factories or plants which do not qualify for registration under this section of the Factories Act is discussed in Chapter 22 dealing with " Small-scale and cottage industries ".

2. Table 1 presents the large-scale industry investment programme, 1955—60. The 60 major industries listed account for all large-scale industries in which public funds are invested and over 90 per cent. of purely private industries.

3. There were on June 30, 1955, about 3035 factories (2) qualified to register under section 2. (j) of the Factories Act, together employing a total fixed and working capital of about Rs. 2,260 million. The expansion programme calls for the investment of an additional Rs. 1,977 million for new capacity and Rs. 292 million for modernisation, a total of Rs. 2,269 million. Of this, it is expected that Rs. 880 million will be invested by the P.I.D.C. The foreign exchange component of the total investment is expected to be the equivalent of Rs. 1,332 million. Upon the completion of this investment programme the annual increase in value of product will be about Rs. 2,081 million, of which the import component will be Rs. 830 million.

4. This and the following several paragraphs are in explanation of Table 1. Column (1) lists the 60 major industries for which capacity goals are set. They were chosen because of their importance to the national economy, either by virtue of the amount of capital invested in them, or because sizeable investment is recommended during the Plan period. The industries listed represent, in addition to those scheduled to the P.I.D.C., over 90 per cent. of private industrial investment.

5. Column (2) states the number of factories existing in working order as of June 30, 1955, for each of the industry sectors listed. This is the number which qualify as factories under the Factories Act, whether or not they are registered.

6. Column (3) is the effective annual capacity existing in the factories listed under column (2) at June 30, 1955. This is not merely " rated " capacity, but is a measure of the actual production obtainable from these factories, given sufficient raw materials and facilities. This is the production expected from these factories during the Plan period.

7. Column (4) presents in millions of rupees the total productive capital invested in the factories listed under column (2) at June 30, 1955. It includes both working capital (stocks, payroll, funds, etc.) and fixed capital (land, plant, equipment, etc.).

8. Column (5) is the expansion in effective capacity to be brought about by the end of the Plan period.

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(1) " Industry " here is to be interpreted in the same sense as throughout the industry chapters of the report. It does not include mining, quarrying, or fuel extraction, transport companies or the manufacture of raliway equipment, ordnance factories, municipal services, generation or transmission of electricity, construction, commercial and financial institutions, service companies, tea gardens and forestry operations, fisheries and merchant shipping.

(2) This includes an estimated 450 powered cotton gins, employing less than 20 persons and, therefore, not strictly registerable under section 2 (j ).

9. Column (6) is the expected total actual capacity by the end of the Plan period. This is also the expected production, since it is assumed that raw materials and facilities will be made available for practically full operation of this capacity.

10. Column (7) states in millions of rupees the investment required to bring about the expansion of column (5). This includes both fixed and working capital.

11. Column (8) presents the estimated investment in millions of rupees required to modernise, where necessary, the existing capacity of column (3). It has nothing to do with increased capacity but, by definition, merely replaces old capacity. It is assumed that for each unit of capacity added through modernisation, an equivalent unit of obsolete capacity will be retired. Column (9) is the total of Columns (7) and (8).

12. Column (10) gives that portion of the total investment which it is estimated will be provided by private sources. Except for those industries in which the P.I.D.C. is engaged, it is equivalent to the total investment. For industries in which the Government is investing through the P.I.D.C., the amount shown under column (10) is either the estimated private subscription in P.I.D.C. projects, the sale of P.I.D.C. projects to private interests upon completion, or else strictly private projects in that industry. The fact that the P.I.D.C. invests in an industry is not taken to remove it from the sphere of private development. In such industries as sugar, jute, cement, fine chemicals and drugs, where considerable expansion is expected in the Plan period, private industrialists are urged to start purely private projects.

13. Column (11) presents an estimate of the portion of the total investment which will be made through the P.I.D.C. in those industries in which it operates.

14. Column (12) is the rupee equivalent of the foreign exchange component of the total investment shown in column (9).

15. Column (13) shows the increased value of annual production resulting from increased capacity. This is the increase in value of product at *ex*-mill prices, not merely value added in the manufacturing process. It assumes that the increased capacity is fully utilised.

16. Column (14) is a measure of the annual foreign exchange drain involved in operating the additional capacity to produce the product of column (13). As such it must be deducted from column (13) before the resulting foreign exchange earnings or savings can be estimated. Included in column 14 are :

(*a*) Imported raw materials, fuel, and replacement parts.

(*b*) Depreciation on the foreign exchange component of investment.

(*c*) Export value of the indigenous raw materials used (*e.g.*, jute, cotton, wool, hides) which would otherwise be exported.

17. Column 15 is the potential effect of the investment programme on the balance of payments. Actually it exaggerates the true net effect because there will undoubtedly be increased consumption due to increased availability. For example in the case of sugar, the increased production exceeds by a considerable extent the present imports. This is as it should be, and is meant to alleviate a pressing shortage, but it is not valid to conclude that, if the sugar capacity had not been increased, this total amount would have been imported. This is true also of cigarettes, cotton textiles, and others. Chapter 20 discusses the effect of the industrial investment programme on the balance of payments.

## The public investment programme

18. The investment programme recommended for the Pakistan Industrial Development Corporation is contained in the total programme of Table 1. The P.I.D.C. programme is shown alone in Table 2, which also presents a breakdown of expected public expenditure by years during the Plan period. The total investment in these industries for increasing capacity during the period will be about 1,200 million rupees of which it is expected about 325 million rupees will come from private sources and about 875 million rupees will be direct P.I.D.C. investment. The schedule of public expenditure by years shows some bunching in the middle year 1957-58. This cannot be avoided if high-priority projects of considerable magnitude are to be completed in the Plan period. It must be recognised, however, that this does not mean the P.I.D.C's work load will be any heavier in this year than in other years of the period. In many cases a large part of the investment in land and equipment is made before work on the project starts.

## TABLE I

*Large-scale industry investment programme*, 1955—60

| SECTOR | Estimated industrial capacity June 30, 1955 | | | | Planned capacity increase (1955—60) | | | | | | Estimated annual effect on balance of payments | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. of factories | Effective annual capacity | Productive capital invested Rs. (M) | Increase in effective capacity | Total effective capacity (1960) | Investment in increased capacity. Rs. (M) | Investment in modernisation. Rs. (M) | Total investment Rs. (M) | Private investment. Rs. (M) | Public investment. Rs. (M) | Foreign exchange component of investment. Rs. (M) | Increase in value of product. Rs. (M) | Import component of operation. Rs. (M) | Potential effect on balance payments. Rs. (M) |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) |
| **AGRICULTURAL PROCESSING :** | | | | | | | | | | | | | | |
| Cotton ginning ... ... | 807(1) | 2·0 (2)M bales | 134·4 | 0·25 M bales | 2·25 M bales | 16·2 | 68·0 | 84·2 | 84·2 | *Nil* | 46·4 | 150·0 | 6·0 | 144·0 |
| Jute baling ... ... | 78 presses | 7·0 M pucca bales | 87·6 | *Nil* | 7·0 M pucca bales | *Nil* | 2·0 | 2·0 | 2·0 | *Nil* | 1·0 | *Nil* | *Nil* | *Nil* |
| Tea manufacturing ... | 119 | 55·0 M lbs. | 50·0 | 5·0 M lbs. | 60·0 M lbs. | 6·0 | 4·7 | 10·7 | 10·7 | *Nil* | 4·4 | 12·3 | 1·0 | 11·3 |
| **MILLING :** | | | | | | | | | | | | | | |
| Wheat ... ... | 40 | 0·50(3) M tons milled wheat. | 24·0 | 0·123 M tons | 0·873 M tons | 6·2 | 3·6 | 9·8 | 9·8 | *Nil* | 5·3 | 32·0 | 0·6 | 31·4 |
| Rice ... ... ... | 219 | 2·0 M tons milled rice. | 15·7 | 0·15 M tons | 2·15 M tons | 6·0 | 2·4 | 8·4 | 8·4 | *Nil* | 5·0 | 37·5 | 0·5 | 37·0 |
| Sub Total ... | 1,263 | | 311·7 | | ... | 34·4 | 80·7 | 115·1 | 115·1 | *Nil* | 62·1 | 231·8 | 8·1 | 223·7 |
| **FOOD PRODUCTS INDUSTRIES :** | | | | | | | | | | | | | | |
| Edible vegetable oils ... | 130 | 220,000 tons | 105·0 | *Nil* | 220,000 tons | 3·5(4) | 14·0 | 17·5 | 17·5 | *Nil* | 9·2 | 12·0(5) | 0·7 | 11·3 |
| Vegetable ghee ... ... | 6 | 23,000 tons | 20·0 | *Nil* | 23,000 tons | *Nil* | 2·0 | 2·0 | 2·0 | *Nil* | 1·0 | *Nil* | *Nil* | *Nil* |
| Food processing ... ... | 10 | 11·0 M lbs. | 4·0 | 21·0 M lbs. | 32·0 M lbs. | 3·7 | 1·5 | 5·2 | 5·2 | *Nil* | 2·9 | 15·7 | 5·3 | 10·4 |
| Sugar ... ... ... | 10 | 115,000 tons | 86·9 | 120,000 tons | 235,000 tons | 225·9 | 12·0 | 237·9 | 76·0 | 161·9 | 104·2 | 84·0 | 15·6 | 68·4 |
| Cigarettes ... ... | 6 | 4,500 millions | 49·0 | 5,500 million Cig. | 10,000 millions | 31·0 | *Nil* | 31·0 | 31·0 | *Nil* | 17·4 | 60·0 | 20·7 | 39·3 |
| Sub Total ... | 162 | | 264·9 | | | 264·1 | 29·5 | 293·6 | 131·7 | 161·9 | 134·7 | 171·7 | 42·3 | 129·4 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **TEXTILE AND CLOTHING :** | | | | | | | | | | | | | |
| Cotton ... ... ... | 97 | 1·60 M spindles | 530·0 | 0·45 M spindles | 2·05 M spindles | 212·6 | 38·0 | 250·6 | 250·6 | *Nil* | 152·0 | 308·0 | 182·7 | 125·3 |
| Woollen ... ... | 15 | 30,790 spindles (6) | 50·3 | 16,250 spindles | 47,040 spindles | 14·0 | 6·4 | 20·4 | 18·1 | 2·3 | 13·0 | 40·0 | 23·3 | 16·7 |
| Jute ... ... ... | 12 | 7,000 looms | 185·6 | 5,000 looms | 12,000 looms | 173·0 | 12·0 | 185·0 | 97·0 | 88·0 | 109·7 | 192·0 | 153·0 | 39·0 |
| Silk and art silk ... ... | 128 | 4,000 power looms | 20·5 | 600 looms | 4,600 power looms | 4·8 | 1·2 | 6·0 | 6·0 | *Nil* | 3·0 | 10·0 | 4·2 | 5·8 |
| Hosiery and Knitted goods | 75 | Rs. 12·0 M | 6·7 | Rs. 2·1 M | Rs. 14·1 M | 1·8 | 1·2 | 3·0 | 3·0 | *Nil* | 1·3 | 2·1 | 0·5 | 1·6 |
| Apparel ... ... ... | 13 | Rs. 4·1 M | 2·6 | Rs. 8·0 M | Rs. 12·1 M | 4·0 | 1·1 | 5·1 | 5·1 | *Nil* | 2·1 | 8·0 | 0·4 | 7·6 |
| Sub Total ... | 340 | | 795·7 | | | 410·2 | 59·9 | 470·1 | 379·8 | 90·3 | 281·1 | 560·1 | 364·1 | 196·0 |
| **WOOD PRODUCTS :** | | | | | | | | | | | | | | |
| Saw milling ... ... | 14 | Rs. 2·0 M | 1·5 | *Nil*(7) | Rs. 2·0 M | *Nil* | *Nil* | *Nil* | *Nil* | *Nil* | *Nil* | *Nil* | *Nil* | *Nil* |
| Woodwares (mostly furniture). | 11 | Rs. 3·0 M | 2·5 | *Nil* | Rs. 3·0 M | *Nil* | 0·6 | 0·6 | 0·6 | *Nil* | 0·3 | *Nil* | *Nil* | *Nil* |
| Plywood and tea chests ... | 3 | 4·5 M. sq. ft. | 0·9 | 4 M. sq. ft. | 8·5 M. sq. ft. | 1·2 | 0·4 | 1·6 | 1·6 | *Nil* | 0·9 | 2·0 | 0·7 | 1·3 |
| Sub Total ... | 28 | | 4·9 | | | 1·2 | 1·0 | 2·2 | 2·2 | *Nil* | 1·2 | 2·0 | 0·7 | 1·3 |
| **PAPER :** | | | | | | | | | | | | | | |
| Printing, writing and wrapping paper. | 1 | 30,000 tons | 60·0 | 12,000 tons | 42,000 tons | *Nil* (8) | *Nil* | *Nil* | *Nil* | *Nil* | *Nil* | 12·0 | *Nil* (9) | 12·0 |
| Newsprint ... ... | *Nil* | *Nil* | *Nil* | 23,000 tons | 23,000 tons | 107·4 | *Nil* | 107·4 | *Nil* | 107·4 | 89·6 | 13·8 | 13·4 | 0·4 |
| Card and strawboard ... | *Nil* | *Nil*(10) | 26·2 | 35,000 tons | 35,000 tons | 49·8 | *Nil* | 49·8 | *Nil* | 49·8 | 31·0 | 40·0 | 11·0 | 29·0 |
| Card board ... ... | *Nil* | *Nil* | *Nil* | 12,000 tons | 12,000 tons | 19·2 | *Nil* | 19·2 | *Nil* | 19·2 | 10·5 | 13·2 | 2·8 | 10·4 |
| Sub Total ... | 1 | | 86·2 | | | 176·4 | *Nil* | 176·4 | *Nil* | 176·4 | 131·1 | 79·0 | 27.2 | 51.8 |

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(1) This includes all ginning factories employing power regardless of the number of employees.
(2) M=Million.
(3) Long tons of 2240 lbs.
(4) This is for the production of copra, not oil, and hence no additional oil capacity is shown.
(5) Value of 15,000 tons of copra, not oil.
(6) These are the looms on hand in the country. Many are not yet installed.
(7) New saw milling schemes are included with timber extraction in the Agriculture Section of the Report.
(8) This is partial production of the newsprint plant. Investment is included under 'Newsprint'.
(9) Included under 'Newsprint'.
(10) Although Rs. 26·2 M. have been invested, the two plants involved were not yet operative by June 30, 1955, hence the capacity is shown as *nil*. This is true also of motor tyres and tubes, fertilisers and iron and steel, all included below.

# TABLE I—*contd.*

| SECTOR | Estimated industrial capacity June 30, 1955 | | | Planned capacity increase (1955—60) | | | | | | | | Estimated annual effect on balance of payments | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. of factories | Effective annual capacity | Productive capital invested Rs. (M) | Increase in effective capacity | Total effective capacity (1960) | Investment in increased capacity. Rs. (M) | Investment in modernization. Rs. (M) | Total investment. Rs. (M) | Private investment. Rs. (M) | Public investment. Rs. (M) | Foreign Exchange component of investment. Rs. (M) | Increase in value of product. Rs. (M) | Import component of operation. Rs. (M) | Potential effect on balance of payments. Rs. (M) |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) |
| **LEATHER AND PRODUCTS** | | | | | | | | | | | | | | |
| Leather tanning ... ... | 54 | Upper: 17 M. sq. ft. | 24·2 | 2·9 M sq. ft. (upper) | 19·9 M sq. ft. | 6·0 | 6·5 | 12·5 | 12·5 | *Nil* | 6·0 | 3·6 | 3·0 | 0·6 |
| | | Sole: 16 M lbs. | | | 16 M lbs. | | | | | | | | | |
| Leather shoes ... ... | 12 | 15 M pairs | 20·0(1) | *Nil* | 15 M pairs | *Nil* | 2·0 | 2·0 | 2·0 | *Nil* | 1·0 | *Nil* | *Nil* | *Nil* |
| Sub Total ... | 66 | | 44·2 | | | 6·0 | 8·5 | 14·5 | 14·5 | *Nil* | 7·0 | 3·6 | 3·0 | 0·6 |
| **RUBBER PRODUCTS** | | | | | | | | | | | | | | |
| Cycle tyres and Cycle tubes | (12)(3)1·0 M units<br>2·0 M units | | 4·7 | *Nil* | 1·0 M pairs<br>2·0 M pairs | *Nil* | 1·2 | 1·2 | 1·2 | *Nil* | 0·6 | *Nil* | *Nil* | *Nil* |
| Motor tyres and Motor tubes | (2)(3)7,000(4) tyres | | 2·2 | 0·10 M units<br>0·12 M units | 0·10 M units<br>0·12 M units | 1·7 | *Nil* | 1·7 | 1·7 | *Nil* | 1·1 | 13·8 | 6·3 | 7·5 |
| Rubber soled canvas shoes | (6)(3)9·0 M pairs | | 3·5 | *Nil* | 9·0 M pairs | *Nil* | 1·0 | 1·0 | 1·0 | *Nil* | 0·4 | *Nil* | *Nil* | *Nil* |
| Other rubber products ... | 23 | 1,275 tons | 1·5 | *Nil* | 1,275 tons | *Nil* | *Nil* | *Nil* | *Nil* | *Nil* | *Nil* | *Nil* | *Nil* | *Nil* |
| Sub Total ... | 23 | | 11·9 | | | 1·7 | 2·2 | 3·9 | 3·9 | *Nil* | 2·1 | 13·8 | 6·3 | 7·5 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CHEMICAL INDUSTRIES |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Sulphuric acid ... | 5 | 12,330 tons | 1·2 (⁵) | 6,000 tons (⁶) | 18,330 tons | 2·5 | 0·2 | 2·7 | 2·7 | *Nil* | 1·5 | 3·3 | 2·0 | 1·3 |
| Soda ash ... ... | 1 | 25,000 tons | 16.2 | 11,000 tons | 36,000 tons | *Nil* (⁷) | *Nil* | *Nil* | *Nil* | *Nil* | *Nil* | 4·0 | *Nil* | 4·0 |
| Caustic soda ... ... | 2 | 6,000 tons | 2·6 (⁸) | 20,000 tons | 26,000 tons | 40·9 | *Nil* | 40·9 | *Nil* | 40·9 | 24·0 | 9·2 | 4·5 | 4·7 |
| Fertilisers ... ... | *Nil* | *Nil* | 55·5 | 162,000 tons | 162,000 tons | 77·2 | *Nil* | 77·2 | *Nil* | 77·2 | 45·7 | 59·5 | 16·0 | 43·5 |
| Pharmaceuticals and fine chemicals. | 56 | Rs. 8·0 M | 9·5 | Rs. 21·0 M | Rs. 29·0 M | 20·4 | 2·0 | 22·4 | 12·0 | 10·4 | 13·3 | 21·0 | 12·6 | 8·4 |
| Penicillin ... ... | *Nil* | *Nil* | *Nil* | 8.0 M Meg. units | 8·0 M Meg. units | 9·1 | *Nil* | 9·1 | *Nil* | 9·1 | 5·7 | 9·0 | 3·2 | 5·8 |
| Dyes ... ... ... | *Nil* | *Nil* | *Nil* | 550 tons | 550 tons | 5·9 | *Nil* | 5·9 | 1·5 | 4·4 | 3·2 | 2·9 | 1·9 | 1·0 |
| Paints and varnishes ... | 18 | 36,000 tons | 10·0 | *Nil* | 36,000 tons | *Nil* | 1·9 | 1·9 | 1·9 | *Nil* | 1·2 | *Nil* | *Nil* | *Nil* |
| Matches ... ... | 14 | 12·2 M gross | 17·0 | *Nil* | 12·2 M gross | *Nil* | 1·8 | 1·8 | 1·8 | *Nil* | 1·0 | *Nil* | *Nil* | *Nil* |
| Soap ... ... ... | 6 | 25,000 tons | 21·0 | *Nil* | 25,000 tons | *Nil* | 2·9 | 2·9 | 2·9 | *Nil* | 1·3 | *Nil* | *Nil* | *Nil* |
| Rayon and cellophane ... | *Nil* | *Nil* | *Nil* | 5,400 tons | 5,400 tons | 70·2 | *Nil* | 70·2 | 70·2 | *Nil* | 45·0 | 31·3 | 10·6 | 20·7 |
| Turpentine and rosin ... | 1 | Rs. 0·9 M | 0·6 | Rs. 1·8 M | Rs. 2·7 M | 1·0 | *Nil* | 1·0 | 0·5 | (0·5) (⁹) | 0·4 | 1·8 | 0·3 | 1·5 |
| D.D.T. ... ... | 1 | 700 tons | 3·5 | 700 tons | 1,400 tons | 4·3 | *Nil* | 4·3 | *Nil* | 4·3 | 2·5 | 2·7 | 0·9 | 1·8 |
| Sub Total ... | 104 |  | 137·1 |  |  | 231·5 | 8·8 | 240·3 | 93·5 | 146·3 | 144·8 | 144·7 | 52·0 | 92·7 |
| LIQUID FUELS |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Petroleum refining ... | 1 | 65 M gal. | 28·6 | *Nil* | 65 M gal. | *Nil* | 3·6 | 3·6 | 3·6 | *Nil* | 1·9 | *Nil* | *Nil* | *Nil* |
| Power alcohol ... ... | *Nil* | *Nil* | *Nil* | 0·5 M gal. | 0·5 M gal. | 2·0 | *Nil* | 2·0 | 2·0 | *Nil* | 1·5 | 0·4 | 0·1 | 0·3 |
| Sub Total ... | 1 |  | 28·6 |  |  | 2·0 | 3·6 | 5·6 | 5·6 | *Nil* | 3·4 | 0·4 | 0·1 | 0·3 |

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(¹) This includes investment in rubber shoe manufacturing capacity in those factories which produce both leather and rubber shoes.

(²) Included in the 23 factories listed under "Other rubber products". That is, those factories which produce cycle tubes and rubber shoes also produce other rubber products.

(³) These factories are presently retreading but not producing new tyres. They are included in the 23 factories listed under "Other rubber products".

(⁴) These are retread tyres, not new tyres. The investment of col. (4) includes Rs. 0·2 M for increasing retreading capacity from 7,000 tyres to 14,000 tyres. These are not included in the units of col. (5) which are new tyres and tubes.

(⁵) This does not include the investment in the sulphuric acid plants at the Karnafuli Paper Mill or Lyallpur Superphosphate Plant, since these are already included in the investment in the respective parent plants. The capacity of these plants is, however, included under col. (3).

(⁶) This is free sulphuric acid for the market and does not include the sulphuric acid to be produced at the rayon plant for its own use.

(⁷) Soda ash investment is shown as *nil* since it will be produced by the caustic soda plant.

(⁸) This is the investment in the Nowshera plant only. Investment in Karnafuli is included with the paper plant.

(⁹) This Rs. 1·0 M consists of Rs. 0·5 M from private sources and Rs. 0·5 M from the Government of West Pakistan. This Government investment is parenthesized here to distinguish it from P.I.D.C. investment, and is not added into the sub-total. The P.I.D.C. investment of Rs. 0·2 M was made prior to June 30, 1955, and hence does not appear.

## TABLE I—*contd.*

| SECTOR | Estimated industrial capacity June 30, 1955 | | | Planned capacity increase (1955—60) | | | | | | | Estimated annual effect on balance of payments. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. of factories | Effective annual capacity | Productive capital invested (Rs. M) | Increase in effective capacity | Total effective capacity (1960) | Investment in increased capacity. Rs. M | Investment in modernisation. Rs. M | Total investment. Rs. M | Private investment. Rs. M | Public investment. Rs. M | Foreign exchange component of investment. Rs. M | Increase in value of product. Rs. M | Import component of operation. Rs. M | Potential effect on balance of payments. Rs. M |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) |
| NON-METALLIC MINERAL PRODUCTS | | | | | | | | | | | | | | |
| Structural clay ... ... | 4 | 10,000 tons | 6·0 | 20,000 tons | 30,000 tons | 7·3 | 1·2 | 8·5 | 8·5 | *Nil* | 4·4 | 4·7 | 1·6 | 3·1 |
| Glass | | | | | | | | | | | | | | |
| Hollow-ware ... ... | 11 | 20,000 tons | 4·9 | 18,000 tons | 38,000 tons | 10·0 | 3·8 | 13·8 | 13·8 | *Nil* | 8·0 | 15·9 | 7·7 | 8·2 |
| Sheet ... ... | *Nil* | *Nil* | *Nil* | 14 M sq. ft. | 14 M sq. ft. | 5·0 | *Nil* | 5·0 | 5·0 | *Nil* | 2·8 | 2·3 | 1·0 | 1·3 |
| Scientific ... ... | *Nil* | *Nil* | *Nil* | 2,000 tons | 2,000 tons | (1) *Nil* | *Nil* | *Nil* | *Nil* | *Nil* | *Nil* | 2·1 | 0·4 | 1·7 |
| Cement ... ... | 5 | 0·67 M tons | 65·7 | 0·61 M tons | 1·28 M tons | 79·4 | 12·5 | 91·9 | 37·5 | 54·4 | 53·5 | 67·1 | 9·0 | 58·1 |
| Cement products ... | 13 | Rs. 5·0 M | 5·0 | Rs. 3·6 M | Rs. 8·6 M | 4·9 | 1·2 | 6·1 | 6·1 | *Nil* | 2·9 | 3·6 | 0·4 | 3·2 |
| Ceramics and refractories ... | 6 | 2,000 tons ceramics<br>22,000 tons refractories | 6·8 | 1,000 tons ceramics | 3,000 tons ceramics.<br>22,000 tons refractories | 2·7 | 1·6 | 4·3 | 4·3 | *Nil* | 2·0 | 1·2 | 0·3 | 0·9 |
| Sub Total ... | 39 | | 88·4 | | | 109·3 | 20·3 | 129·6 | 75·2 | 54·4 | 73·6 | 96·9 | 20·4 | 76·5 |
| ENGINEERING INDUSTRIES : | | | | | | | | | | | | | | |
| Iron and steel ... ... | *Nil* | *Nil* | 5·0 | 15,000 tons pig iron. | 15,000 tons pig iron. | 50·0 | *Nil* | 50·0 | *Nil* | 50·0 | 32·5 | 4·4 | 3·2 | 1·2 |
| Steel melting ... ... | 2 | 19,000 tons | 2·6 | *Nil* | 19,000 tons | *Nil* | *Nil* | *Nil* | *Nil* | *Nil* | *Nil* | *Nil* | *Nil* | *Nil* |
| Steel re-rolling ... ... | 34 | 125,000 tons | 17·9 | 30,500 tons | 155,500 tons | 13·5 | 4·3 | 17·8 | 17·8 | *Nil* | 10·9 | 17·2 | 12·3 | 4·9 |
| Shipyards ... ... | 12 | Rs. 30 M | 35·3 | Rs. 97·2 M | Rs. 127·2 M | 76·1 | 6·1 | 82·2 | 6·1 | 76·1 | 40·0 | 97·2 | 53·5 | 43·7 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Medium and light(2) engineering | 352 | Rs. 130 M | 104·0 | Rs. 23·0 M | Rs. 153·0 M | 22·8 | 19·7 | 42·5 | 42·5 | *Nil* | 24·0 | 23·0 | 14·3 | 8·7 |
| Non-ferrous products ... | 109 | Rs. 40 M | 14·0 | Rs. 4·5 M | Rs. 44·5 M | 1·5 | 6·1 | 7·6 | 7·6 | *Nil* | 3·6 | 4·5 | 3·2 | 1·3 |
| Enamelware ... ... | 8 | 1,400 tons | 3·0 | *Nil* | 1,400 tons | *Nil* | *Nil* | *Nil* | *Nil* | *Nil* | *Nil* | *Nil* | *Nil* | *Nil* |
| Sub Total ... | 517 | | 181·8 | | | 163·9 | 36·2 | 200·1 | 74·0 | 126·1 | 111·0 | 146·3 | 86·5 | 59·8 |
| **ELECTRICAL INDUSTRIES:** | | | | | | | | | | | | | | |
| Motors, switch gear and fans | 19 | Rs. 9·4 M | 12·0 | Rs. 13·5 M | Rs. 22·9 M | 10·5 | 1·5 | 12·0 | 12·0 | *Nil* | 7·8 | 13·5 | 6·0 | 7·5 |
| Cables, batteries and appliances. | 6 | Rs. 17·0 M | 11·5 | Rs. 29·8 M | Rs. 44·8 M | 17·0 | 0·4 | 17·4 | 17·4 | *Nil* | 10·4 | 29·8 | 10·6 | 19·2 |
| Radios and redifussion ... | 7 | 30,000 radios | 4·0 | 45,000 radios 30,000 relay speakers. | 75,000 radios 30,000 relay speakers. | 4·6 | 0·3 | 4·9 | 4·9 | *Nil* | 3·0 | 5·4 | 3·9 | 1·5 |
| Sub Total ... | 32 | | 27·5 | | | 32·1 | 2·2 | 34·3 | 34·3 | *Nil* | 21·2 | 48·7 | 20·5 | 28·2 |
| **SUI GAS:** | | | | | | | | | | | | | | |
| Transmission ... ... | ... | ... | 84·0 | ... | ... | 160·0 | *Nil* | 160·0 | 113·9 | 46·1 | 104·0 | (3) 39·6 | 4·6 | 35·0 |
| Distribution ... ... | ... | ... | *Nil* | ... | ... | 54·0 | *Nil* | 54·0 | 36·0 | 18·0 | 31·7 | *Nil* | *Nil* | *Nil* |
| Sub Total ... | | | 84·0 | | | 214·0 | *Nil* | 214·0 | 149·9 | 64·1 | 135·7 | 39.6 | 4·6 | 35·0 |
| **OTHER INDUSTRIES:** | | | | | | | | | | | | | | |
| Printing and publishing ... | 133 | Rs. 27 M | 38·9 | Rs. 5·4 M | Rs. 32·4 M | 7·3 | 11·0 | 18·3 | 18·3 | *Nil* | 9·4 | 5·3 | 1·3 | 4·0 |
| Film industry ... ... | 6 studios | 15 Films | 4·0 | 15 Films | 30 Films | 7·6 | 3·0 | 10·6 | 10·6 | *Nil* | 5·8 | 6·8 | 2·8 | 4·0 |
| Misc. industries not listed (4). | 320 | ... | 150·0 | ... | ... | 130·0 | 25·0 | 155·0 | 155·0 | *Nil* | 93·0 | 220·0 | 80·0 | 140·0 |
| Unallocated Funds (P.I.D.C.). | ... | ... | ... | ... | ... | 55·0 | *Nil* | 55·0 | *Nil* | 55·0 | 36·0 | 100·0 | 35·0 | 65·0 |
| Unforeseeable private investment in new industries. | ... | ... | ... | ... | ... | 125·0 | *Nil* | 125·0 | 125·0 | *Nil* | 75·0 | 210·0 | 75·0 | 135·0 |
| Sub Total ... | 459 | | 192·9 | | | 324·9 | 39·0 | 363·9 | 308·9 | 55·0 | 219·2 | 542·1 | 194·1 | 348·0 |

(1) Scientific glass will be produced in the same plant that produces hollow-ware.
(2) Includes iron foundries, but not steel melting, casting or re-rolling.
(3) Annual gross foreign exchange savings evaluated for throughput of 70 million cu. ft. per day.
(4) Includes such industries as bakery goods, dairy poducts, beverages, breweries, plastic products, sports goods, surgical instruments, musical instruments, pencils, paper products, bone crushing, oxygen and acetylene, cosmetics, etc., except where no power is employed, in which case they are included under small-scale industry.

## TABLE I—*contd.*

| SECTOR | Estimated industrial capacity June 30, 1955 | | | | | Planned capacity increase (1955-60) | | | | | | Estimated annual effect on balance of payments | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. of factories | Effective annual capacity | Productive capital invested (Rs. M) | Increase in effective capacity | Total effective capacity (1960) | Investment in increased capacity. (Rs. M) | Investment in modernisation. (Rs. M) | Total investment. (Rs. M) | Private investment. (Rs. M) | Public investment. (Rs. M) | Foreign exchange component of investment. (Rs. M) | Increase in value of product. (Rs. M) | Import component of operation. (Rs. M) | Potential effect on balance of payments. (Rs. M) |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) |
| **TOTAL INDUSTRIES :** | 3,035 | | 2259·8 | | | 1971·7 | 291·9 | 2263·6 | 1388·6 | 874·5 | 1331·2 | 2080·7 | 829.9 | 1250·8 |
| | | | | | | | | | | (Makerwal Collieries 7·7) | | | | |
| | | | | | | | | | | (Total P.I.D.C. programme 882·2) | | | | |
| **Provincial Government Industrial Investment.** | | | | | | | | | | | | | | |
| **Turpentine and rosin** | ... | ... | ... | ... | ... | ... | ... | ... | ... | 0·5 | ... | ... | ... | ... |
| **Industrial trading estates and facilities.** | ... | ... | ... | ... | ... | 3·4 | ... | 3·4 | *Nil* | 3·4 | 1·0 | ... | ... | ... |
| **Sub Total** | ... | ... | ... | ... | ... | 3·4 | ... | 3·4 | ... | 3·9 | 1·0 | ... | ... | ... |
| **National Productivity Centre** | ... | ... | ... | ... | ... | 1·6 | ... | 1·6 | *Nil* | 1·6 | *Nil* | ... | ... | ... |
| **GRAND TOTAL LARGE-SCALE INDUSTRY INVESTMENT PROGRAMME.** | 3,035 | ... | 2259·8 | ... | ... | 1976·7 | 291·9 | 2268·6 | 1388·6 | 880·0 | 1332·2 | 2080·7 | 829·9 | 1250·8 |

### TABLE 2

### *PIDC programme* 1955—60

(Million rupees)

| | Investment, 1955—1960 | | | Programme of expected public expenditure by years | | | | |
|---|---|---|---|---|---|---|---|---|
| Industry | Total | Private | Public | 1955-56(1) | 1956-57 | 1957-58 | 1958-59 | 1959-60 |
| Sugar ... ... ... ... | 225·9 | 64·0 | 161·9 | 24·9 | 49·0 | 40.0 | 22·0 | 26·0 |
| Woollen textiles ... ... ... | 2·3 | *Nil* | 2·3 | 1.7 | 0·6 | *Nil* | *Nil* | *Nil* |
| Jute goods ... ... | 173·0 | 85·0 | 88·0 | 12·5 | 21·5 | 19·5 | 19·5 | 15·0 |
| Newsprint ... ... ... | 107·4 | *Nil* | 107·4 | 1·0 | 19·1 | 30·0 | 30·3 | 27·0 |
| Card and straw board ... ... | 49·8 | *Nil* | 49·8 | 3·8 | *Nil* | 9·2 | 15·0 | 21·8 |
| Hard board ... ... ... | 19.2 | *Nil* | 19·2 | *Nil* | *Nil* | 1·2 | 8·7 | 9·3 |
| Caustic soda ... ... ... | 40.9 | *Nil* | 40·9 | *Nil* | 2·5 | 13·2 | 13·2 | 12·0 |
| Fertilisers ... ... ... | 77.2 | *Nil* | 77·2 | 11·0 | 21·7 | 29·5 | 15·0 | *Nil* |
| Pharmaceuticals and fine chemicals ... | 10.4 | *Nil* | 10·4 | 0·4 | *Nil* | *Nil* | 5·0 | 5·0 |
| Penicillin ... ... ... | 9·1 | *Nil* | 9·1 | *Nil* | 4·5 | 2·3 | 2·3 | *Nil* |
| Dyes ... ... ... | 5·9 | 1·5 | 4·4 | *Nil* | *Nil* | 2·4 | 1·0 | 1·0 |
| D.D.T. ... ... ... | 4·3 | *Nil* | 4·3 | *Nil* | *Nil* | 0·4 | 1·5 | 2·4 |
| Cement ... ... ... | 79·4 | 25·0 | 54·4 | 14·0 | 18·4 | 8·0 | 8·0 | 6·0 |
| Iron and steel ... ... ... | 50·0 | *Nil* | 50·0 | *Nil* | *Nil* | 15·0 | 15·0 | 20·0 |
| Shipyards ... ... ... | 76·1 | *Nil* | 76·1 | 29·6 | 17·7 | 13·8 | 10·0 | 5·0 |
| Sui gas transmission ... ... | 160·0 | 113·9 | 46·1 | 10·0 | 23·0 | 13·1 | *Nil* | *Nil* |
| Sui gas distribution ... ... | 54·0 | 36·0 | 18·0 | 5·0 | 3·0 | 3·0 | 3·0 | 4·0 |
| Unallocated funds ... ... | 55·0 | *Nil* | 55·0 | *Nil* | *Nil* | 10·0 | 15·0 | 30·0 |
| Sub-total Industries ... | 1199·9 | 325·4 | 874·5 | 113·9 | 181·0 | 210·6 | 184·5 | 184·5 |
| Makerwal collieries (2) ... ... | 7·7 | *Nil* | 7·7 | 2·7 | 5·0 | *Nil* | *Nil* | *Nil* |
| Grand total (PIDC) ... | 1207·6 | 325·4 | 882·2 | 116·6 | 186·0 | 210.6 | 184·5 | 184·5 |

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[1] Trade year (July-June).

[2] Development of the Makerwal collieries is discussed in the chapter on Fuels and Minerals. The expenditure is included here so that the entire PIDC programme can be shown together.

### TABLE 3

### *Public investment in large-scale industry between East and West Pakistan* 1955—60

(Million rupees)

| Industry | Public (2) investment 1955-60 | Investment in East Pakistan | Investment in West Pakistan (1) |
|---|---|---|---|
| Sugar | 161·9 | 123·4 | 38·5 |
| Woollen textiles | 2·3 | *Nil* | 2·3 |
| Jute goods | 88·0 | 88·0 | *Nil* |
| Newsprint | 107·4 | 107·4 | *Nil* |
| Card and straw board | 49·8 | 46·0 | 3·8 |
| Hard board | 19·2 | 19·2 | *Nil* |
| Caustic soda | 40·9 | 3·5 | 37·4 |
| Fertilisers | 77·2 | *Nil* | 77·2 |
| Pharmaceuticals | 10·4 | 10·0 | 0·4 |
| Penicillin | 9·1 | *Nil* | 9·1 |
| Dyes | 4·4 | *Nil* | 4·4 |
| D.D.T. | 4·3 | 4·3 | *Nil* |
| Cement | 54·4 | *Nil* | 54·4 |
| Iron and steel | 50·0 | *Nil* | 50·0 |
| Shipyards | 76·1 | 20·4 | 55·7 |
| Sui gas transmission | 46·1 | *Nil* | 46·1 |
| Sui gas distribution | 18·0 | *Nil* | 18·0 |
| Unallocated funds | 55·0 | 28·0 | 27·0 |
| Sub-total (Industries) | 874·5 | 450·2 | 424.3 |
| Makerwal collieries (3) | 7·7 | *Nil* | 7·7 |
| Grand Total | 882·2 | 450·2 | 432·0 |

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[1] Karachi is included in West Pakistan.

[2] Government investment through PIDC.

[3] Development of the Makerwal collieries is discussed in the chapter on Fuels and Minerals. The expenditure is included here so that the entire PIDC programme can be shown together.

## TABLE 4

### *PIDC programme by Provinces and years, 1955—60.*

(Rs. Million)

| | 1955-56 | 1956-57 | 1957-58 | 1958-59 | 1959-60 |
|---|---|---|---|---|---|
| *East Pakistan* : | | | | | |
| Sugar ... ... ... ... | 18·4 | 29·0 | 28·0 | 22·0 | 26·0 |
| Jute ... ... ... ... | 12·5 | 21·5 | 19·5 | 19·5 | 15·0 |
| Newsprint ... ... ... | 1·0 | 19·1 | 30·0 | 30·3 | 27·0 |
| Card and straw board ... ... | ... | ... | 9·2 | 15·0 | 21·8 |
| Hard board ... ... ... | ... | ... | 1·2 | 8·7 | 9·3 |
| Caustic soda ... ... ... | ... | ... | 1·5 | 2·0 | ... |
| Pharmaceuticals ... ... ... | ... | ... | ... | 5·0 | 5·0 |
| D.D.T. ... ... ... ... | ... | ... | 0·4 | 1·5 | 2·4 |
| Shipyards ... ... ... | 12·9 | 6·7 | 0·8 | ... | ... |
| Unallocated ... ... ... | ... | ... | 5·0 | 8·0 | 15·0 |
| Total ... | 44.8 | 76·3 | 95·6 | 112·0 | 121·5 |
| *Karachi* : | | | | | |
| Shipyards ... ... ... | 16·7 | 11.0 | 13·0 | 10·0 | 5·0 |
| Sui gas distribution ... ... | 5·0 | 2.0 | 2·0 | 1·0 | ... |
| Total ... | 21.7 | 13·0 | 15·0 | 11·0 | 5.0 |
| *West Pakistan* : | | | | | |
| Sugar ... ... ... ... | 6·5 | 20·0 | 12·0 | ... | ... |
| Woollen textiles ... ... ... | 1·7 | 0·6 | ... | ... | ... |
| Card and straw board ... ... | 3·8 | ... | ... | ... | ... |
| Caustic soda ... ... ... | ... | 2·5 | 11.7 | 11.2 | 12·0 |
| Fertilisers ... ... ... | 11·0 | 21.7 | 29.5 | 15·0 | ... |
| Pharmaceuticals ... ... ... | 0.4 | ... | ... | ... | ... |
| Penicillin ... ... ... | ... | 4·5 | 2.3 | 2·3 | ... |
| Dyes ... ... ... ... | ... | ... | 2.4 | 1·0 | 1·0 |
| Cement ... ... ... ... | 14·0 | 18·4 | 8.0 | 8·0 | 6·0 |
| Iron and steel ... ... ... | ... | ... | 15.0 | 15·0 | 20·0 |
| Sui gas transmission ... ... | 10·0 | 23·0 | 13.1 | ... | ... |
| Sui gas distribution ... ... | ... | 1·0 | 1.0 | 2·0 | 4·0 |
| Unallocated ... ... ... | ... | ... | 5.0 | 7·0 | 15·0 |
| Total ... | 47·4 | 91·7 | 100·0 | 61·5 | 58·0 |
| GRAND TOTAL : | | | | | |
| East Pakistan ... | 44·8 | 76·3 | 95·6 | 112·0 | 121·5 |
| Karachi ... ... | 21·7 | 13·0 | 15·0 | 11·0 | 5·0 |
| West Pakistan ... | 47·4 | 91·7 | 100·0 | 61·5 | 58·0 |
| | 113.9 | 181·0 | 210·6 | 184·5 | 184·5 |

19. Table 3 shows that of the total public investment through the PIDC in the Plan period, about Rs. 450 million, or slightly over half, is designated for East Pakistan and about Rs. 432 million, or slightly less than half, is for West Pakistan. This balance of expenditures results naturally from choosing among industrial investment opportunities on the basis of their merits, as measured by economic returns. It slightly alters the pattern of past government investment which shows that of the total PIDC programme completed, or under implementation, at the beginning of the Plan period about Rs. 114 million is in East Pakistan and Rs. 144 million in West Pakistan. Table 4 combines the programme given in Table 2 with the geographical division of investment presented in Table 3.

20. A discussion of the PIDC projects and schemes which are summarised in the above tables is contained in the detailed sector studies which follow later in this chapter. These studies present in summary form an analysis of the present position, need for expansion and improvement, and recommended investment programme for each industry listed in Table 1 of this chapter. The expected results of this investment programme in terms of national income, foreign exchange savings and earnings, and employment are discussed in Chapter 20.

21. The following paragraphs summarise the investment programme for large-scale industries.

### Agricultural processing industries

22. The industries included here are cotton ginning, jute baling, tea manufacturing and wheat and rice milling. A major programme of replacement and modernisation, estimated to cost 68 million rupees, is necessary to rebuild the country's *cotton ginning* establishments which are largely obsolete. About 20 new mills will also be needed, mostly in areas to be brought under cotton cultivation for the first time.

There are about 78 *jute presses* in the country, expected to be sufficient for the jute crop until 1960.

An expansion in *tea manufacturing* facilities is provided to process the additional 5 million pounds of tea expected by 1960, and some modernisation of existing facilities is expected.

Both the wheat and rice crop are expected to increase by 1960 and, although the bulk of rice and wheat milling is carried on in small-scale units in the villages, the Plan provides for increased large-scale *wheat-milling* facilities of 123,000 tons and *rice-milling* of 150,000 tons at a total cost of 12·2 million rupees. The total investment expected in agricultural processing industries is 34·4 million rupees for increased capacity and 80·7 million rupees for modernisation.

### Food and tobacco products industries

23. Under this heading are included edible vegetable oils and vegetable ghee, fruit and vegetable tinning, sugar and cigarettes. Considerable *vegetable oil* is produced by village *kohlus*. Cotton seeds, however, are pressed only in large-scale units. The present capacity for producing edible oil (about 220,000 tons per year) exceeds the availability of oil seed. We do not recommend increased expelling capacity ; the programme is restricted to the development of copra drying facilities in East Pakistan at a cost of 3·5 million rupees, and modernisation of the existing plant at a cost of about 14 million rupees.

*Vegetable ghee* capacity is also in excess of available oil, and therefore no expansion of capacity is recommended during the Plan period.

The Plan proposes to triple the capacity for *fruit and vegetable processing* during the Plan period, to 32 million pounds annually ; this would be done by setting up a pineapple canning plant in East Pakistan and adding a new plant in north western West Pakistan.

*Sugar* capacity has risen from about 35,000 tons at the time of partition to about 115,000 tons in 1955 and the Plan proposes to further expand the capacity to 235,000 tons by 1960, with the bulk of the new capacity located in East Pakistan. The expansion is estimated to cost about 226 million rupees and necessary modernisation of old units an additional 12 million rupees.

At partition there were no large-scale *cigarette* factories in the country ; by 1955 there were six factories, with an annual capacity of 4,500 million cigarettes, which we propose should be increased during the Plan period to 10,000 million, at a cost of about 31 million rupees. The total investment expected in food and tobacco products industries during the Plan period amounts to 264 million rupees for new capacity, and about 30 million rupees for modernisation.

**Textiles**

24. The *cotton textile* industry has been the most prominent element in Pakistan's industrial development since partition ; spindles installed have risen from 180,000 at partition to 1,600,000 by the middle of 1955. By 1955 the country was nearing self-sufficiency in coarse and medium cloth, and the further development of the industry during the Plan period is expected to take the following form : installing additional spindles to bring the total to 2·05 million, with most of the additional spindles being for fine count yarn ; installing additional looms to bring the total to 33,000 ; installing combing and preparation equipment, particularly for producing fine-count yarn ; installing finishing equipment to balance existing capacity. The estimated cost of the expansion is about 213 million rupees, *plus* 38 million rupees for modernising existing plants. Total production capacity for mill-made cloth, assuming an average spindle usage of 2 1/2 shifts per day, will be about 11,50 million yards per year by 1960 and of handloom cloth about 385 million yards. Consumption of cloth in the country is expected to rise from about 11·5 yards to 14 yards per person, and the country will also have yarn and cloth available for export.

Present capacity for producing *woollen textiles* is about 30,800 spindles ; another 16,250 have already been sanctioned, which would require an estimated investment of 14 million rupees.

There was no *jute manufacturing* capacity at partition ; by mid-1955, 6,750 looms had been purchased and about 3,300 were in operation. By 1960 we propose that 12,000 looms should be installed, which would permit annual exports worth about 350 million rupees, compared with a value of the equivalent amount of raw jute exports of approximately 250 million rupees. The cost of purchasing and installing the additional looms is estimated at 173 million rupees.

There are about 50 *art-silk power looms* in East Pakistan. The Plan provides for the installation of 600 additional art-silk power looms there to meet local requirements for art-silk cloth.

The total investment expected in the textile and clothing industry during the plan period amounts to about 410 million rupees for increased capacity and about 60 million for modernisation.

### Wood and paper products

25. Investment in timber extraction and saw milling is included in the Chapter on Agriculture. *Furniture* is made in the country primarily on a cottage industry basis, though there are a few organised factories. There are also two plywood factories. The Plan endorses investment in a new *plywood factory* in Chittagong which is nearing completion, principally to provide material for tea chests, nearly all of which are now imported, *plus* some investment in modernisation for the existing plywood and furniture factories, all at a cost of about 1·6 million rupees.

Substantial investment has been made in *paper mills* in recent years : the large Karnaphuli mill for writing, printing, and packing paper; the Nowshera factory for card and strawboard ; and the Rahwali mill for strawboard and wrapping paper. The principal investments included in the Plan are : a newsprint factory at Khulna, to produce 23,000 tons of *newsprint* per year and 12,000 tons of writing paper at an estimated investment cost of 107 million rupees ; a 12,000 ton hard board factory, estimated to cost 19 million rupees ; and a 20,000-ton card/straw board mill, at an estimated cost of 46 million rupees. All of those new paper plants are to be in East Pakistan. Total investment in new capacity in wood and paper products industries is expected to be about 178 million rupees.

### Leather and rubber products

26. The country now has some 54 large scale *tanneries* with an annual capacity of 17 million square feet of upper and 16 million pounds of sole leather which is enough to provide tanned leather for nearly all domestic uses, but not enough to tan the hides and skins sold abroad. The Plan provides for two modern tanneries, one in each Wing, designed for export production of upper leather, and also to serve as model plants for the improvement of quality and the training of workmen throughout the industry. Considerable modernisation of existing plants is also necessary to produce leather which can compete in world markets.

Some modernisation is also necessary in respect of existing *shoe factories*, but no new factories are proposed, since it is estimated that cottage shoemakers can fill the gap between factory production (about 15 million pairs per year) and requirements (about 25 million pairs per year).

New investment is provided in the Plan to complete the factory now under way to produce 100,000 *motor tyres* and 120,000 *tubes* per year. No increased capacity seems to be required for cycle tyres and tubes, rubber-soled canvas shoes, and other rubber products, but some modernisation is necessary. The estimated total investment in leather and rubber products industries amounts to about 8 million rupees for new capacity and about 11 million for modernisation.

### Chemical industries

27. The country has a good start in the production of certain types of chemicals but considerable additional capacity is needed. We propose that during the plan period the investment in chemical industries should be nearly doubled. Major additions to capacity include the following :—

(*a*) Two 3,000 ton *sulphuric acid* plants, one in each Wing, in addition to the present capacity of about 12,300 tons.

(*b*) Two new *caustic soda* plants, a 17,000 ton plant for West Pakistan, (which will also produce 11,000 tons of soda ash), and a 3,000 ton plant for East Pakistan.

(*c*) Completion of *fertiliser* plants which have been started—the Daudkhel plant to produce 50,000 tons annually of ammonium sulphate, and the Lyallpur plant to produce 12,000 tons of super-phosphate. In addition, a new plant is proposed for converting Sui gas into nitrogenous fertiliser ; the plant should be located along the lower Indus, so that a large share of its product can be easily transported by sea to East Pakistan. This plant will produce 100,000 tons of fertiliser per year. In the late stages of preparing the Plan estimated requirements for fertiliser by 1960 were substantially raised, and further study may indicate the desirability of increasing the capacity of this plant.

(*d*) A large *pharmaceutical and drugs* factory to be built by the PIDC in East Pakistan.

(*e*) Commencing the production of *dye stuffs*, all of which are now imported, beginning with 550 tons per year of congo red and sulphur black.

(*f*) Construction of a *penicillin* plant, with the help of the World Health Organisation, producing as much penicillin as is now imported.

(*g*) Construction of a plant to produce 7·2 million pounds of viscose *rayon yarn* and 3·6 million pounds of *cellophane* per year from cotton linters.

(*h*) A 700 ton per year D.D.T. plant for East Pakistan.

(*i*) Modernisation but no additional capacity, in the case of paints and varnishes, matches and soap.

The total investment in chemical industries during the Plan period is expected to amount to 232 million rupees in increased capacity and 9 million rupees in modernisation.

### Brick, glass, cement, and ceramic products

28. *Brick, tile, and clay* products are especially important to the country because they can be based on domestic raw materials. Annual capacity in 1955 was estimated at 10,000 tons, and it is proposed to add another 20,000 tons capacity by 1960.

*Glass* production also requires considerable expansion. It is proposed to establish two up-to-date hollowware glass factories, one in each Wing, which can also produce the simpler types of scientific glassware ; this will approximately double the present annual capacity of 20,000 tons. In addition, one sheet glass factory is proposed with an annual capacity of 14 million square feet ; no sheet glass is produced in the country at present.

Since partition, *cement* consumption has increased from 325,000 tons per year to about 800,000 tons, and by 1960 is expected to reach about 1,200,000 tons. Capacity in 1955 was about 670,000 tons ; we propose that capacity of about 610,000 tons should be added during the Plan period, including the capacity under construction at Hyderabad and Daudkhel, bringing the total capacity by 1960 to 1,280,000 tons. We also recommend increased capacity for producing cement products, pipes, tiles, and asbestos cement sheets.

Capacity to manufacture *pottery* and ordinary *fire bricks* is considered adequate for the country's requirements. New capacity should be added, however, for *glazed tiles*, insulators, sanitary goods and light fire bricks. The total investment in new capacity proposed in brick, glass, cement, and ceramic products is estimated to total 109 million rupees, with another 20 million rupees for modernisation of existing plant.

### Engineering industries

29. In the last three years the deposits of iron ore near Kalabagh have been explored and investigations have been undertaken of the possibility of using the ore to produce *iron and steel*. During the Plan period it is proposed that a beginning should be made

in order to gain technical experience and lay the basis for later expansion. The Plan provides 50 million rupees for this purpose. On the eve of the publication of the Plan we have received a revised scheme from the PIDC requiring an investment of Rs. 170 million in the Plan period and aiming at an output of 69,000 tons of steel billets. It was under examination when this report was issued.

There are a number of *steel re-rolling* mills in the country, producing bars and shapes from imported billets and from locally-gathered scrap. These mills have a capacity of about 125,000 tons annually. New capacity of 30,500 tons is proposed to produce sheets and strapping in addition to bars and simple shapes ; most of the additional capacity will be in East Pakistan.

There are some twelve *shipbuilding yards, repair yards, and dry docks* in the two Wings. Major work to be carried out during the Plan period includes completing the Karachi shipyard and drydock, which will have capacity to build and repair ocean-going vessels in the 10,000-ton range, and completing the Narayanganj and Khulna shipyards for repair and construction of vessels for inland water transport in East Pakistan.

There are about 350 engineering shops in the country, mostly in West Pakistan, producing ferrous metal products ranging from lathes to wire nails. Two *motor vehicles assembly* plants have been authorised in addition to the one already in operation. The three plants will have a combined capacity of about 2,000 vehicles per year. Some additional engineering workshop capacity is required in the vicinity of Dacca. Other than these special considerations, there is probably sufficient basic capacity to meet the country's requirements during the Plan period, but considerable funds will be needed to modernise and improve existing plants. A similar situation exists with respect to the 100 or so factories producing *non-ferrous metal* items using brass, copper, aluminium, etc. The total investment in engineering industries is estimated to cost 164 million rupees for new capacity and 36 million rupees for modernisation.

## Electrical industries

30. There seems to be sufficient capacity at present to produce *electric fans*, but development is expected in *electric motors, switch gear* and related equipment. Production of electric motors is expected to total 80,000 HP per year by 1960, and it is hoped that the country will be practically self-sufficient in a standard-size transformers, switch gear, and electric meters.

Production of *cables, batteries* and *electrical appliances* should expand considerably during the Plan period. A plant has recently been established in Karachi for making cable. Storage-battery capacity is expected to increase to 100,000 units by 1960. The Plan also provides for establishing one electrical appliance factory in each Wing.

It is highly important to increase the number of radios assembled in the country, and to commence manufacturing the simpler components ; this can be accomplished without setting up any new factories. A programme of rediffusion is recommended for which domestic production of relay speakers will be required. Total investment in electrical industries throughout the Plan period is expected to be Rs. 32·1 million for new capacity and Rs. 2·2 million for modernisation.

## Gas transmission and distribution

31. The gas pipeline from Sui to Karachi was nearing completion as the Plan period began. It will be necessary during the Plan period to install distribution facilities in the Karachi area, to build a transmission line from Sui to Lahore *via* Multan and Lyallpur, and to install distribution facilities for this line. Estimated costs are 214 million rupees.

**Other industries**

32. A considerable number of other industries exist which, though small individually, in total are an important part of the industrial economy. These include printing and publishing, films, bakery products, beverages, and musical instruments. In addition we have made an allowance for industrial development which could not be specifically foreseen. Together, our estimate is that perhaps 364 million rupees will be invested in these industries over the Plan period.

## INDUSTRY STUDIES

33. The following studies present in summary form an analysis of the present position, need for expansion and improvement, and recommended investment programme for each industry listed in the investment programme of Table 1 above. For convenience, a list of these industries is given below, in the order in which they appear in Table 1 and are discussed in this Section.

### LARGE-SCALE INDUSTRY CLASSIFICATION

**Agricultural Processing:**

- Cotton ginning
- Jute baling
- Tea manufacturing

**Milling :**

- Wheat
- Rice

**Food Products Industries :**

- Edible vegetable oils
- Vegetable ghee
- Food processing
- Sugar
- Cigarettes

**Textile and Clothing:**

- Cotton
- Woollen
- Jute
- Silk and art silk
- Hosiery and knitted goods
- Apparel

**Wood Products :**

- Saw milling
- Woodware (mostly furniture)
- Plywood and tea chests

**Leather and Products :**

- Leather tanning
- Leather shoes

**Rubber Products:**

- Cycle tyres and tubes
- Motor tyres and tubes
- Rubber-sold canvas shoes
- Other rubber products

**Chemical Industries:**

- Sulphuric acid
- Soda ash
- Caustic soda
- Fertilisers
- Pharmaceuticals and fine chemicals
- Penicillin
- Dyes
- Paints and varnishes
- Matches
- Soap
- Rayon and cellophane
- Turpentine and rosin
- D.D.T.

**Paper :**

Printing, writing and wrapping paper
Newsprint
Card and strawboard
Hardboard

**Engineering Industries :**

Iron and steel
Steel melting
Steel re-rolling
Shipyards
Medium and light engineering
Non-ferrous products
Enamelware

**Electrical Industries :**

Motors, switch gear and fans
Cables, batteries, and appliance
Radios and rediffusion

**Sui Gas :**

Transmission
Distribution

**Liquid Fuels :**

Petroleum refining
Power alcohol

**Non-Metallic Mineral Products :**

Structural clay products

*Glass*
- Hollow-ware
- Sheet
- Scientific

Cement
Cement products
Ceramics and refractories

**Other Industries :**

Printing and publishing
Film industry
Industrial trading estates.

## AGRICULTURAL PROCESSIONS

**Cotton ginning**

34. The value of the cotton crop depends, in addition to the grade and type of cotton, to a considerable extent on the quality of the ginning. Careless ginning, mixing, and dirtying of the cotton, can reduce the export value appreciably. At present the quality of ginning is not good for three main reasons : carelessness, poor equipment, and intentional adulteration. Insufficient attention seems to be given to the quality of work done. Seeds are chipped and pressed into the cotton, dirt is allowed to remain in, and the fibres are cut and torn recklessly. Although the equipment in use leaves much to be desired, it is possible to do a much better job with this equipment than is now being done.

35. Most of the cotton gins are antiquated roller gins of a type long ago discarded by other cotton-producing countries. There is nothing inherently inferior in the roller gin. Although its rate of output is considerably lower than of the saw gin, it has the redeeming feature of treating the fibres more gently. The decision as to whether new ginning equipment should be roller gins or saw gins should perhaps await the outcome of the experiments being conducted by the PIDC in its new model saw gins, but it should be made in

time to install the new equipment during the Plan period. One of the chief obstacles to the improvement of ginning establishments has been the evacuee property regulations by which evacuee-owned gins (of which there are a large number) are taken over by the government and leased annually to operators. This destroys all incentive for improvement of the equipment. Some way must be found quickly for disposing of these gins to private owners.

36. Intentional mixing of *desi* cotton with longer fibre types is still going on in the gins to an alarming extent in spite of all government regulations to the contrary. Evidently additional enforcement is necessary. Under no circumstances should government regulations be altered to allow the blending of cotton in the gins. This would inevitably lead to even further adulteration.

37. There were a total of 807 factories in operation during the 1954-55 season. Some 450 of these are small establishments having only one or two roller gins. As a matter of convenience, however, all are classified under large-scale industry and included in Table 1. An estimated Rs. 134·4 million is invested in these factories and their capacity is known to exceed 2·0 million bales per annum.

38. Only a small ginning capacity increase is deemed necessary in the Plan period. Rather what is needed is a complete overhaul of the present capacity with the introduction of pre-cleaning equipment, conveying and bulk handling equipment, complete new gins, new rollers and saws and miscellaneous machine parts. No less than Rs. 68·0 million is required for this modernisation programme by 1960.

39. There is need for some new gins to service land being newly brought under cotton cultivation, primarily near the barrages in Sind and the Thal. Also, a few new gins are required for some isolated areas where they are not now located within a reasonable distance of the cotton fields. An estimated Rs. 16·2 million will be required to establish about 20 new mills, bringing the total investment in the Plan period to Rs. 84·2 million. Of this the equivalent of Rs. 46·4 million will be in foreign currencies.

### Jute baling

40. Since partition the number of jute presses in the country has increased from 32 in 1947, with a baling capacity of about 2·7 million bales per year, to 78 in mid-1955, with a capacity of about 7 million bales. The total fixed and working capital now invested in this industry is estimated at Rs. 87·6 million. The presses now on hand are considered to be sufficient for the Plan period, and therefore no new investment is expected. However, some modernisation, estimated to cost about Rs. 2·0 million, will be necessary.

### Tea manufacturing

41. Tea, which is cultivated in the hilly districts of Sylhet, Chittagong and Tipperah in East Pakistan, is one of the important cash crops of the country. Over the past six seasons, from 1950 to 1955, the tea crop has averaged about 53·7 million pounds per season. The production for individual seasons has varied from 55·8 million pounds in 1954 to 51 million pounds in 1955. The country's capacity to process tea is estimated at 55 million pounds per season.

42. Export of tea has averaged 24 million pounds per year during the trade years 1953-54 and 1954-55 and was sold for an estimated 45 million rupees. The remaining 28 million pounds was consumed locally. Domestic consumption is increasing, a fact which threatens to deprive the country of some foreign exchange earnings. International tea prices are gradually rising, and the market is expanding. It therefore seems reasonable for Pakistan to attempt to increase its exports of tea.

43. Production in the 1955 season of 51 million pounds was poor, reportedly due to a shortage of fertilisers, insecticides, and spare parts necessary to keep the tea manufacturing machinery in working order. The basic capacity of 55 million pounds can, however, be considered as the point of departure for planning purposes. There are about 75,000 acres now planted in tea compared with the limit of 85,000 acres established by the International Tea Agreement. This agreement limits Pakistan's export to 47 million pounds per year, almost twice the amount now being exported.

44. Increasing tea production is a slow process, since it takes a new tea bush 5 to 6 years to become productive. Nevertheless, a start should be made and new bushes laid out now so that substantial increase can be realised eventually. It is not unreasonable to assume, however, that the production of tea can increase to 60 million pounds by 1960 with little or no increased acreage, but merely by more liberal use of fertiliser and better cultural practices in general.

45. We estimate that 6·0 million rupees of new equipment and 4·7 million rupees for modernisation will be required over the Plan period to provide a production capacity of 60 million pounds by 1960. The 5 million pounds increased capacity will have a corresponding value of production of about 12·3 million rupees.

## MILLING

### Wheat

46. A large part of the wheat crop is milled in stone mills in the villages. The remainder is milled in power-operated iron-roller mills. There are at present about 40 such roller mills included in the large-scale sector of industry with a capacity of about a half-million tons a year. The area under wheat cultivation has varied from 9·5 to 10·7 million acres between 1948-49 and 1953-54. The average yield for the year 1948-49 to 1954-55 was 3·43 million tons. It is proposed to increase this yield by ·585 million tons over the Plan period. Of this increase, we estimate that ·123 million tons will be milled in large-scale establishments. To handle this extra crop an estimated investment in increased capacity of 6·2 million rupees will be required. An additional 3·6 million rupees will probably be spent in modernising existing mills. The value of the increased production of ·123 million tons is estimated at 32 million rupees.

### Rice

47. As in the case of wheat, a large part of the rice crop is village-milled (husked). This is done either by hand-pounding or by animal-driven mills. In the organised, or large-scale sector of industry, there are about 219 power mills which both de-husk and polish the rice, with a capacity of about 2 million tons per year.

There are now about 24 million acres under rice in both East and West Pakistan, with an average yearly yield of about 8·4 million tons. The increase in production during the Plan period is expected to total ·594 million tons, partly from new acreage and partly from higher yields. We estimate that about ·150 million tons of this additional crop will be milled in large scale establishments. This will require 12 additional mills with a capacity of 12,500 tons each per season. At a cost of 0·5 million rupees each, the new investment would total 6·0 million rupees. Another 2·4 million rupees is recommended for modernisation. The value of the increased production from large-scale mills is estimated at 37·5 million rupees. The Ministry of Food has submitted a scheme for the construction of 10 new rice mills (against the requirement of 12 noted above) at a total cost of 5 million rupees, to be located at strategic places throughout East and Wes Pakistan. We recommend that the private sector be encouraged to undertake the investment in new rice mills.

# FOOD PRODUCTS INDUSTRIES

**Edible vegetable oils**

48. Table 5 shows the acreage under oil seed crops, the available oilseeds and the potential yield of oil, in recent years.

TABLE 5

*Acreage under oil seed crops, and production of oilseeds, average 1948-49—1954-55*

| | Acreage (Thousand acres) | Available (1) oil seeds (Thousand tons) | Oil equivalent (Thousand tons) |
|---|---|---|---|
| Rape & Mustard ... ... ... | 1,624 | 272 | 95 |
| Sesamum ... ... ... ... | 200 | 33 | 12 |
| Coconut ... ... ... ... | 44 | 55(2) | 9 |
| Cotton ... ... ... ... | 3,205 | 537 | 70 |
| Total ... | | 897 | 186 |

*Notes.*—(1) After allowing for seed and other uses.
(2) Weight of husked ripe coconuts.

The present capacity to produce vegetable oil is in excess of available oil seeds. and is expected to continue to be so throughout the Plan period, in spite of increases in the cotton crop and expected higher yields of rape and mustard.

49. Much of the vegetable oil is produced in village oil crushers, called kohlus, of which there may be as many as 100,000 in the country. In the organised sector there are 130 mills which are reported to have a total expelling capacity of close to 220,000 tons per year. These crush all of the cotton seeds, and some of most other varieties of seeds. Those which operate on cotton seed only are mostly located in the Punjab and Karachi.

50. The productive capital invested in these oil mills is estimated at Rs. 105 million, including working-stocks. No investment in new capacity is expected in the Plan period, but considerable expenditure in modernisation is required to improve the efficiency of the expellers now in use, to add delintering machines, and to provide modern storage facilities for seeds. We estimate that 14 million rupees is required for this purpose. It is especially recommended that mills which do not delint cotton seeds before crushing them should do so, since the linters are quite valuable as a source of cellulose and also increase the absorptive capacity of the cake and decrease oil yields.

51. Consideration should be given to the possibility of installing a solvent extraction plant in West Pakistan to remove the oil left in cotton seed cakes by conventional expellers. Some research will be required to determine whether this will be an economical operation, and also to solve the problem of gathering cake from many different sources.

52. The coconut oil industry of East Pakistan requires special attention. A large part of the coconut crop is now going to waste for lack of an organised gathering and drying industry, while at the same time coconut oil is being imported. The Plan provides 3·5 million rupees for the installation of five copra-drying plants, each with a capacity of 3,000 tons per annum. The present crop is thought to be sufficient to supply these plants, if an organised gathering system is devised. No new crushing capacity is recommended for the Plan period, since there is thought to be sufficient slack to take up the increased copra production until 1960.

### Vegetable ghee

53. Present capacity for production of vegetable ghee (also called vanaspati), or hydrogenated vegetable oil, is estimated at 23,000 tons per annum. This is divided among six factories, although one, with a capacity of 3,000 tons, has not been in operation for the past year. An estimated 20 million rupees has been invested in these plants. In contrast to a capacity of 23,000 tons, actual production in 1954 was 11,000 tons, and average consumption before partition was estimated at 15,000 tons. With adequate supply and reasonable prices consumption could be expected to increase by 1960 to about the level of present production capacity. What the industry requires during the Plan period is an increased supply of cotton-seed oil and tinplate, rather than investment in new capacity. About 1960, however, installation of new capacity will probably have to be commenced. Modernisation of existing plant at a cost of about 2·0 million rupees is recommended during the Plan period.

### Food processing

54. A large variety of fruits and vegetables are cultivated in Pakistan, but because of inadequate handling facilities and systems and insufficient preserving capacity a considerable part of the crop is wasted. At present there are 10 processing plants in West Pakistan with a capacity of about 11 million pounds per year (on a two-shift basis during the harvest season). An estimated capital of about Rs. 4·0 million is thought to be invested in these industries. Most of these plants are technologically obsolete. Only two or three have equipment less than ten years old, and in the others the equipment averages over twenty years old.

55. The government fruit canning factory at Nasarpur has been renovated and some new equipment has been added ; it is now being worked by a foreign firm. If the plant is further remodelled and reorganised, production can be expected to increase to 10,000 cans each of fruits, vegetables and meat per day, that is, 30,000 number 2½ tins per day. At this plant in particular, careful consideration should be given to the size of tins used. For army use number 10 tins are said to be superior to number 2½ tins and they save about 15 per cent on tin plate. In addition they have a re-use value. There is no organised processing industry at all in East Pakistan, and consequently large quantities of fruits and vegetables spoil each harvest season.

56. The Plan provides an investment of Rs. 5·2 million, entirely in the private sector. Of this, Rs. 2·7 million is for a pineapple canning plant in East Pakistan to produce slices, pieces and juice at the rate of about 40,000 tins per day, on a two-shift basis, during the canning season (about four months). Additional fruits or vegetables with different harvest seasons should be sought to make fuller use of this plant. Rs. 1·0 million is recommended for a model preserving plant to can fruit, vegetables and meats somewhere in north-west West Pakistan. This should be a modern continuous process plant with a capacity of 30,000 tins per day for two shifts during the canning season. The increased capacity in these two plants would be 21 million pounds per year, bringing the total processing capacity to 32 million pounds. Another Rs. 1·5 million is required for the modernisation of existing plants. In several cases it may be necessary practically to scrap the old plants and start anew.

### Sugar

57. Prior to partition there were five sugar factories functioning in East Pakistan and three in West Pakistan, with a total daily crushing capacity of 5,650 tons. Production of sugar from these mills was estimated at 30-35,000 per year. Since partition the crushing

capacity of Frontier Sugar Mills and the Premier Sugar Mills has been considerably increased and two more sugar factories at Jauharabad and Leia have been added, the former by the PIDC. At present the annual production capacity of those 10 mills stands at about 115,000 tons of sugar.

58. Because the country still imports considerable quantities of sugar, the Plan provides for increasing the existing capacity to 235,000 tons per annum. It is expected that the PIDC and the private sector together will undertake to increase sugar-producing capacity by about 120,000 tons per year. This may be accomplished partially by expanding some of the present plants, and partially by adding new plants ; or it may prove, upon further study, to be best to provide all new capacity. This would require the establishment of 8 additional sugar mills. One of these mills, being built by the PIDC at Charsada, is practically finished, and is expected to crush cane in the 1956 season ; construction is about to start on another at Ranghpur in East Pakistan. The PIDC has also carried out a survey of large tracts of land in Lower Sind and East Pakistan. An important feature of these projects is that many of the sugar mills in the former Sind and in East Pakistan will cultivate a large part of their own cane. We recommend that as many of these mills as possible should be located in East Pakistan even though this may be more difficult than locating the majority of them in the West. Tentatively we assume that it will be possible to locate 5 (including Ranghpur) of the new mills in East Pakistan.

59. The Plan provides for an average expenditure of about Rs. 32 million for each of the six new mills not yet in hand, including an average of 6000 acres of cane farm for each mill. It also includes Rs. 6.5 million remaining to be spent on the Charsada mill and 27·4 million rupees for Ranghpur. This is a total of Rs. 225·9 million for new capacity. In addition, it is expected that Rs. 12 million will be spent in the modernising of old units, bringing the total investment to Rs. 237·9 million. Of this total it is expected that about Rs. 76 million will be private investment and Rs. 161·9 million public investment through the PIDC. The foreign exchange component of the total investment is estimated at Rs. 104·2 million. The value of the potential production of these 8 new mills (120,000 tons) will be about Rs. 84 million per annum.

60. We recommend that sugar by-products should be more fully and economically utilised. Molasses, which is now being wasted, could be used as a mix in cattle feed, or yeast and power alcohol could be made from it. Bagasse can be used for feed and as a raw material for paper and plastics, and perhaps for rayon and cellophane. Bagasse charcoal and fuel briquettes can provide an additional source of fuel. We wish to emphasise that, although the sugar industry is being developed by the PIDC, this does not mean that private industrialists should be discouraged from going into this line. On the contrary, we hope that the private sector will undertake purely private projects in this field and thereby free the PIDC for other development work.

### Cigarettes

61. At partition there were no large-scale cigarette factories in the country. By mid-1955 there were 6 factories in operation, with a total annual capacity of 4,500 million cigarettes. In spite of the prevailing foreign exchange scarcity, cigarettes are still being imported and the pressure of consumer demand keeps the price abnormally high. The use of cigarettes is increasing, and can be expected to continue to increase as the standard of living improves and the population grows. Additional capacity of 5,500 million cigarettes is therefore recommended for the Plan period, bringing the total capacity by 1960 to 10,000 million cigarettes. Much of the tobacco for making cigarettes is now being grown in the country. The tobacco crop in the 1953-54 season was over 200 million pounds but most of this was not of cigarette quality and was used for making bidis. Schemes are in hand

for increasing tobacco acreage, especially Virginia tobacco, during the Plan period. The cost of new capacity is estimated at 31 million rupees, and the value of the resulting production will be 60 million rupees per year.

## TEXTILE AND CLOTHING

### Cotton textile industry

62. For no sector of industry can progress since partition compare with that of cotton textiles. In seven years, the country has turned about from a position of almost complete dependence upon imported cotton cloth and yarn to a point close to self-sufficiency. Today, except for the finer qualities of yarn and cloth, there is sufficient capacity to satisfy the effective home demand. This has been brought about by the Government's policy of restricting imports and simultaneously granting foreign exchange for the purchase of textile machinery. The result has been a rush to set up spindles and looms. Prices have been high and quality poor. Fortunes have been made in spite of indifferent management, low productivity, and inadequate technical personnel. The situation now approaches a turning point. With increasing production, competition is setting in. Prices are falling to more reasonable levels and profit margins are shrinking. The most inefficient mills may soon be in difficulty. The time has come for slowing down expansion, improving the present installation, considering costs and efficiency, and making plans for a more obscure and perhaps difficult future.

63. Underlying this analysis are two basic assumptions : (*a*) Pakistan must compete in the export market and (*b*) the *per capita* consumption of cotton cloth will increase from 11·5 yards in 1955 to 14 yards in 1960.

64. Whatever the difficulties Pakistan might experience in establishing itself in the cotton cloth export market, there is no doubt that large volume exporting should be set as the goal of the textile industry, rather than aiming at more self-sufficiency. There are many reasons why the country should participate in the world trade in cotton textiles and establish solid export markets. Among them are :

(*a*) In the long run foreign exhange earnings would be considerably increased.

(*b*) It would diversify the source of foreign exchange earnings, making the country less dependent upon the raw materials markets. Also, buyers of raw cotton are usually not buyers of cotton cloth. Thus, the number of countries upon which Pakistan depends as customers would be increased.

(*c*) It would provide incentives for efficiency, contribute to general industrial development, and assure economic production of cloth for home consumption.

(*d*) It would provide increased employment.

A strenuous, concerted effort should be commenced at once to find export markets for yarn and cloth.

65. The figures presented are an estimate of the effective demand for cotton cloth during the Plan period. In deriving them, consideration was given not only to the consumption pattern of recent years, but also to the relationship between future cloth prices and purchasing power. The *per capita* consumption of cloth in 1955 was about 11·5 yards. Consumption during the period of the open general licence was also about 11·5 yards. These figures include imported, mill-made and hand-woven cloth. With the process of economic development and increased purchasing power, we assume that consumption will increase to 14 yards in 1960. Considering the slight increase in living standards projected for the next few years, we consider this forecast to be realistic. India's *per capita* consumption of cotton cloth was only slightly higher in 1952 than in

1943 and, in fact, averaged 13·5 yards over the last thirteen years for which data are available. Considering the ready availability of cloth in India during this period, we are not inclined to predict a higher consumption in Pakistan for the Plan period.

66. Table 6 shows the development of spindle and loom capacity since partition. As home production of yarn and cloth has increased, imports have correspondingly decreased. By the end of 1954 imports consisted almost entirely of finer yarn and cloth. The country was close to being self-sufficient in coarse and medium cloth.

### TABLE 6

*Progress in the installation of spindles and looms*(1)

| | Capacity at end of year | | Production | | Imports | | Cloth consumption | |
|---|---|---|---|---|---|---|---|---|
| Year | Spindles | Looms | Cloth bales (1500 yards) | Surplus yarn bales (400 lbs.) | Cloth bales (1500 yards) | Yarn bales (400 lbs.) | Total (million yards) | *per capita* (yards) |
| 1947 ... ... | 177,418 | 4,824 | 74,000 | *Nil* | N.A. | N.A. | N.A. | N.A. |
| 1948 ... ... | 177,418 | 4,824 | 58,705 | 15,506 | 97,044 | 74,650 | 377·9 | 5·2 |
| 1949 ... ... | 235,618 | 5,330 | 61,632 | 23,150 | 179,153 | 178,865 | 684·4 | 9·2 |
| 1950 ... ... | 290,280 | 5,330 | 70,443 | 37,192 | 254,953 | 185,098 | 843·8 | 11·2 |
| 1951 ... | 333,126 | 5,904 | 85,112 | 48,037 | 245,169 | 201,400 | 894·4 | 11·6 |
| 1952 ... ... | 630,368 | 9,318 | 118,209 | 56,040 | 233,831 | 155,000 | 865·7 | 11·0 |
| 1953 ... | 792,898 | 11,911 | 167,751 | 133,674 | 10,144 | 66,200 | 586·7 | 7·3 |
| 1954 ... ... | 1,316,312 | 18,421 | 231,906 | 251,125 | 66,073 | 62,500 | 937·2 | 11.5 |

(1) *Source* : Office of the Textile Commissioner
Central Statistical Office
Textile Industry Yearbook, 1955.

67. At April 1955 there were 1,600,000 spindles and 20,000 mill looms installed. An additional 360,000 spindles were on order and irrevocably committed to. Another 222,000 spindles had been sanctioned and in some cases tentative orders had been placed. These, however, can be cancelled, and we strongly recommend that this be done. Further expansion of the textile industry can be considered later when necessary. In setting targets for the Plan period, we started by accepting the total 1,960,000 spindles to which the country is irrevocably committed. To this is added 90,000 spindles for East Pakistan over and above these already sanctioned. All or most of these additional spindles should be for spinning fine count yarn. About 130,000 spindles originally sanctioned for East Pakistan have not yet been installed. These, in addition to the 90,000 provided here, will increase the capacity of East Pakistan by 220,000 spindles during the Plan period. The total number for the country will therefore be 2·05 million spindles installed by the end of the Plan period; it is expected that 1·8 million will be installed by mid-1956, 2·0 million by mid-1957 and 2·05 million by mid-1958 and that there will be no further increase during the Plan period.

68. Table 7 shows the planned increase in cotton spindles and the corresponding effect upon mill-loom and handloom requirements. If one quarter of the mill yarn is sold unwoven for the benefit of handloom weavers, and the remainder woven in the mills, the number of mill looms required will increase from 34,300 in 1955 to 44,000 in 1960. However, this does not allow for the export of yarn, or the possibility of spindles being operated less than 2-1/2 shifts per day. Until the quality of weaving improves considerably, and even thereafter, it will be easier to export yarn than cloth, and, although it would be preferable to export cloth because of the higher foreign exchange earnings, it will be better to export yarn than raw cotton. Considerable yarn export must therefore be expected. Also, as competition increases there will probably be a tendency to reduce spindle operation to one or two shifts. For these reasons, we are hesitant to recommend the installation of the full number of looms shown in Table 7 as theoretically required to balance the planned spindle capacity. However, the number should undoubtedly increase beyond the 20,000 installed in April 1955. We suggest that installations should continue gradually, with the tentative goal of about 33,000 looms in sight for the year 1960, and that this target should be re-examined during the Plan period. Among the new looms some should be capable of weaving heavy duck, canvas, and tyre cord. The Textile Commissioner is understood to have allocated 38,695 looms in total, but over 10,000 of these have not yet been ordered so there should be no difficulty in curtailing expansion.

### TABLE 7

*Planned increase in spindles and looms and resulting annual capacity, 1955-60**

| Year | | Spindles installed at mid-year (million) | Yarn capacity (1) at mid-year (million lbs.) | Mill Looms (2) Required** | Mill cloth (1) capacity (million yards)** | Surplus yarn (million lbs.) | Handlooms Required (3)** (for cotton weaving only) | Handloom cloth capacity (million yards) | Total cloth capacity (million pards) | Population in millions at (mid-year) | Estimated *per capita* consumption (yards) | Estimated total cloth consumption (million yards) | Potential excess cloth (or equivalent yards) for export(4) (million yards). |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1955 | ... | 1·60 | 300 | 34,300 | 900 | 75 | 187,000 | 300 | 1200 | 82·3 | 11·5 | 946 | 254 |
| 1956 | ... | 1·80 | 340 | 39,000 | 1020 | 85 | 212,000 | 340 | 1360 | 83·5 | 12·0 | 1002 | 358 |
| 1957 | ... | 2·00 | 375 | 42,900 | 1125 | 94 | 235,000 | 376 | 1501 | 84·6 | 12·5 | 1058 | 443 |
| 1958 | ... | 2·05 | 385 | 44,000 | 1155 | 96 | 240,000 | 384 | 1539 | 85·8 | 13·0 | 1116 | 423 |
| 1959 | ... | 2·05 | 385 | 44,000 | 1155 | 96 | 240,000 | 384 | 1539 | 87·0 | 13·5 | 1174 | 365 |
| 1960 | ... | 2·05 | 385 | 44,000 | 1155 | 96 | 240,000 | 384 | 1539 | 88·2 | 14·0 | 1235 | 304 |

(1) Assuming 2-1/2 shift usage of both spindles and looms. (188 lbs. yarn/spindle/day for 300 day yr; 4·0 yd cloth/lb. yarn, including waste).

(2) Assuming 35 yd./loom/shift, or 26,250 yd./loom/yr.

(3) Assuming average production of 8 yds./day for 200 days/yr., or 1600 yds./yr.

(4) If production is curtailed, these excesses will not develop.

* This is a statement of capacities and *not a prediction of actual production expected.*

** Assuming that all yarn is woven. Actually considerable yarn will undoubtedly be exported unwoven.

69. The requirements for handlooms are based on the assumption that the Government's present policy of requiring mills to sell one-quarter of their yarn unwoven will remain in effect during the Plan period. Assuming an average handloom production of 8 yards per day for 200 days per year the number required comes to about 240,000 by the year 1958. If, however, some improved "semi-automatic" handlooms are adopted, which

are reported to have a production rate of up to 20 yards per day, the total number required for cotton weaving may be somewhat less. In addition, of course, handlooms will weave wool, silk, and art silk. Handlooms are discussed in the following chapter.

70. Hitherto, all the yarn spun in the country has been of coarse and medium counts (defined as below 36's). Fine and super-fine yarns, and cloth woven from them, continue to be imported. It is estimated that the market for fine cloth is about 15 per cent of the total cotton cloth market. There is no reason why the country should not be self-sufficient in finer yarns as well as in coarse and medium yarn. The three main factors influencing the production of fine yarn are: (*a*) equipment, (*b*) fibre length, and (*c*) spinning skill.

71. We strongly urge that all spindles to be imported in the Plan period should be capable of spinning yarn of counts finer than 36's. Allied with the spinning of finer yarn is the installation of combing equipment. We estimate that it will be necessary to use combing machines in preparation for spinning yarn finer than 40's from indigenous cotton, and finer than 50's from imported cotton. On this basis, the installation of combing and additional preparatory equipment to service 250,000 spindles is recommended.

72. To spin yarn finer than 50's count, long-fibre imported cotton must be used. It seems to be economically sound to import cotton to spin finer yarns rather than to import yarn. Another factor to be considered is that experiments in growing Egyptian cotton in Sind are being conducted, and it may be that Pakistan will eventually have its own long-fibre cotton.

73. It is more difficult at all stages of the preparatory and spinning process to turn out good-quality fine yarn than good-quality coarse yarn. Since most coarse yarn being spun now is not of the best quality, it will be some time before the average mill is capable of producing good-quality fine yarn.

74. The total investment in new capacity during the Plan period is expected to be Rs. 212·6 million. This is composed of the following items:

(*a*) 450,000 new spindles and 13,000 new looms in integrated mills, including air conditioning;

(*b*) Combing and preparation equipment; and

(*c*) Finishing equipment.

An additional Rs. 38 million is suggested for modernising present plants, including the installation of some improved air-conditioning equipment, bringing the total investment to Rs. 250·6 million during the Plan period. Of this, about the equivalent of Rs. 152·0 million will be required in foreign currencies.

75. Table 8 shows the past and expected future production and projected home use of cotton for the trade years 1950-51 to 1959-60. Actual production and use data are shown for the years 1950-51 to 1953-54, and projections on the basis of crop expectations and planned spindle installations are used for the years 1954-55 to 1959-60. The important problematical assumption underlying the mill use of domestic cotton is that spindles will be operated on an average of 2-1/2 shifts a day throughout the Plan period. If, as competition sets in, the mills reduce spindle operation to restrict production, the projected home use of cotton shown here will, of course, be too high. Imported long-fibre cotton is assumed to be necessary for the spinning of counts finer than 50's, and the volume of such yarn spun is expected to be about 8 per cent of the total production during the years 1954-55

to 1959-60. The table shows clearly that, if the cotton crop reaches 2·25 million bales in 1959-60, the exportable surplus cotton will again reach the 1·2 million bale figure at which it stood in 1950-51.

TABLE 8

*Past and expected future production and home use of cotton, trade years, 1950-51—1959-60.*

| Trade year | Production (Thousand Bales) | Spindles installed at beginning of trade year (Thousand) | Yarn capacity (1) (million lbs.) | Mill requirements of cotton(2) Domestic (Thousand Bales) | Mill requirements of cotton(2) Imported (3) (Thousand Bales) | Mill requirements of cotton(2) Total (Thousand Bales) | Non-mill uses (4) (Thousand Bales) | Total Home Consumption of domestic cotton (Thousand Bales) | Available for export (Thousand Bales) |
|---|---|---|---|---|---|---|---|---|---|
| 1950-51 ... | 1410 | 250 | 48·3 | 143 | 7 | 150 | 14 | 157 | 1253 |
| 1951-52 ... | 1420 | 320 | 61·7 | 183 | 9 | 192 | 14 | 197 | 1223 |
| 1952-53 ... | 1800 | 510 | 95·1 | 285 | 14 | 299 | 18 | 303 | 1497 |
| 1953-54 ... | 1440 | 750 | 152·8 | 428 | 22 | 450 | 14 | 442 | 998 |
| 1954-55 ... | 1600 | 1000 | 188 | 501 | 44 | 545 | 16 | 517 | 1083 |
| 1955-56 ... | 1700 | 1600 | 300 | 800 | 70 | 870 | 17 | 817 | 883 |
| 1956-57 ... | 1950 | 1800 | 340 | 907 | 79 | 986 | 19 | 920 | 1024 |
| 1957-58 ... | 2050 | 2000 | 380 | 1014 | 88 | 1102 | 20 | 1034 | 1016 |
| 1958-59 ... | 2150 | 2050 | 385 | 1027 | 89 | 1116 | 21 | 1048 | 1102 |
| 1959-60 ... | 2250 | 2050 | 385 | 1027 | 89 | 1116 | 22 | 1049 | 1201 |

(1) Actual production and use figures 1950—54, capacity figures 1955—60. Capacity based on 2-1/2 shift use of spindles and production of 188 lbs. yarn/spindle/year on average count of 22's.

(2) Assuming 15 per cent waste.

(3) 5 per cent of total usage 1950-51 to 1953-54; 8 per cent of total usage 1954-55 to 1959-60.

(4) 1 per cent of total crop exclusive of mill waste.

## Woollen textiles

76. The annual production of raw wool has averaged 28 million lbs. over the past several years. In addition, approximately 6 million lbs. is brought into West Pakistan each year by tribesmen from north of the border. In the past about 26 million pounds of the total 34 million pounds was exported, and the other 8 million pounds consumed by the small local textile and rug industries. Although this indigenous wool is well suited for carpets, military blankets, great coats and heavy tweeds, most of it is too coarse and short for the finer woollen fabrics referred to as "worsteds". For such fabrics imported wool tops are required.

77. The present capacity is 30,790 spindles located in 15 different mills. Of these, 13,040 are woollen spindles and 17,750 are worsted spindles. The Government has already sanctioned an additional 22,500 spindles, of which 14,000 are woollen spindles and 8,500 are worsted spindles. If implemented, this would bring the total by 1,960 to 53,290 spindles, 27,040 woollen and 26,250 worsted. In our opinion the number of spindles allotted is excessive and we have not included it in the programme.

78. According to the best information available to us the country's estimated annual needs for woollen and worsted yarn are as follows :

*Woollen*

| *Use* | Quantity (Thousand lbs.) |
|---|---|
| Tweeds and overcoating ... ... ... ... | 350 |
| Civilian blankets ... ... ... ... ... | 1,200 |
| Military overcoating and surplus blanketing ... ... | 450 |
| Barrack blankets ... ... ... ... ... | 2,100 |
| Handlooms ... ... ... ... ... ... | 1,300 |
| Carpet yarns ... ... ... ... ... ... | 4,950 |
| Total ... | 10,350 |

*Worsted*

| | Quantity (Thousand lbs.) |
|---|---|
| Military (socks, shirts, etc.) ... ... ... ... | 2,150 |
| Civilian ... ... ... ... ... ... | 1,250 |
| Total ... | 3,400 |

Not more than 24,000 woollen spindles, working two shifts, can provide the 10·3 million lbs. of wool yarn required, and 23,000 worsted spindles, also working two shifts, can produce the 3·4 million lbs. of worsted yarn required. Thus, the Government's sanction seems to be in excess of needs to the extent of 3,040 woollen spindles and 3,250 worsted spindles. The recommended programme of expansion is for an additional 11,000 woollen spindles and 5,250 worsted spindles.

79. As opportunities arise to reduce the sanctions given, we suggest that the Government should take advantage of the chance to do so. There seems to be no particular reason why this industry, especially the worsted section, should be allowed to produce in excess of the country's immediate needs. We estimate that about Rs. 20 million annually worth of imported wool tops would be required to employ, on a two-shift basis, the 26,250 worsted spindles sanctioned. This is a foreign exchange drain that should be avoided to the maximum extent possible.

80. The PIDC has built two woollen mills, at Harnai and Bannu, each having 2,340 woollen spindles. These cost Rs. 10 million in total and are now in operation. Another woollen mill, at Quaidabad in the Thal area, to have a capacity of 1,000 woollen spindles, is under construction. This mill is being built jointly by the PIDC and the Thal Development Authority. It will cost an estimated Rs. 2·5 million. The additional 16,250 spindles included in the Plan will cost about Rs. 14·0 million, including the cost of completing Quaidabad. Another Rs. 6·4 million is included for modernising existing mills, bringing the total investment to Rs. 20·4 million, of which the equivalent of Rs. 13·0 million, will be in foreign exchange.

**Jute goods**

81. At partition there were no jute looms in the territory that became Pakistan and very few baling presses, far less than was required to bale the normal jute crop. The PIDC was given responsibility for developing the jute manufacturing industry and, with the aid of private industrialists, had purchased 7,000 looms, by March, 1955, of which about 3,300 were installed and operating, mostly on a two-shift basis. The remaining looms were not in use.

82. Following currency revaluation, the situation improved rapidly. Stocks melted, installation of looms was speeded up and the industry operated with renewed enthusiasm. The world market for jute goods is generally considered to be stagnant, although some authorities have recently predicted a slow and gradual increase. On the one hand, bulk handling methods and substitutes for jute are shrinking the market. On the other hand, increasing living standards and new uses tend to expand the market. The popularity of jute depends entirely on its cheapness. Substitutes are available and will displace jute the moment it becomes economical to do so. Economic development in India is increasing the consumption of jute. A similar tendency may be found in other developing countries. All things considered, we are inclined to take a cautiously optimistic view.

83. Pakistan has natural advantages in the jute goods industry which ought to be fully exploited. We therefore recommend a bold programme of expansion with the goal of purchasing and installing 5,000 additional looms by 1960, bringing the total of looms

installed to 12,000. The recommended expansion programme is shown by years in Table 9. This programme, given the present volume of international trade, would provide enough capacity for Pakistan to supply over 34 per cent of the jute goods in international trade by 1960. But this proportion would decrease as the total world trade increases. Larger markets will have to be found and better channels of distribution worked out, so these goods can be sold. Although this may seem a difficult undertaking, the country must exploit all opportunities of earning foreign exchange.

TABLE 9

*Jute loom expansion programme and export projections, 1955—60*

| Trade year | Looms on hand at end of trade year | Looms operating at end of trade year | Production capacity of operating looms (2) (two shifts) (Thousand tons) | Domestic requirements of Jute Goods (Thousand tons) | Surplus Jute Goods for export (Thousand tons) | Surplus Jute Goods as percentage of international trade (3) |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|  |  |  |  |  |  | % |
| 1954-55 ... ... | 6,750 | 3,300 | 106 | 43 | 63 | 7 |
| 1955-56 ... ... | 8,000(1) | 5,000 | 160 | 46 | 114 | 12·6 |
| 1956-57 ... ... | 9,000 | 75,00 | 240 | 50 | 190 | 21·1 |
| 1957-58 ... ... | 10,000 | 9,500 | 304 | 53 | 251 | 27·9 |
| 1958-59 ... ... | 11,000 | 10,500 | 336 | 57 | 279 | 31·0 |
| 1959-60 ... ... | 12,000 | 11,500 | 368 | 60 | 308 | 34·2 |

(1) 250 of the additional looms to arrive during 1955-56 have already been ordered.
(2) At the rate of 16 tons/looms/shift/yr.
(3) Based on total international trade of 900,000 tons.

84. The planned expansion programme will involve an investment of 173 million rupees. An additional 12 million rupees should perhaps be spent in modernisation, bringing the total investment to 185 million rupees during the Plan period, of which about 110 million will be in foreign currencies. We hope that at least 97 million of this investment, that is, the cost of half of the additional looms and all the modernising expense, will come from private sources, leaving about 88 million rupees to be invested through the PIDC.

## Silk and art silk textiles

85. An average of about 8·7 million pounds of art silk (rayon) yarn, and just a trickle of real silk yarn, have been imported annually since 1951/52 ; the figures are given in Table 10 below. The are silk weaving industry has depended to date entirely on imported yarn. In 1952 there were about 740 power looms producing an estimated 5·5 million yards of

art silk cloth, the remainder of the yarn being woven by handlooms. By June 1955, there were about 4,000 power looms installed and the production of art silk cloth in 1954 was 12·6 million yards. For the past two years imports have not been sufficient fully to employ the power looms installed.

### TABLE 10

*Estimated imports of silk and art silk yarn, 1951—56*

| | 1951-52 | | 1952-53 | | 1953-54 | | July-Dec. 1954 | | 1955-56 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Volume | Value Rs. M. | Volume | Value Rs. M. | Volume | Value Rs. M. | Volume | Value Rs. M. | Volume | Value (2) Rs. M. |
| Art silk yarn (Million lbs.) ... | 8·00 | 29·0 | 7·0 | 17·3 | 9·8 | 19·0 | 2·6 | 5·0 | 11·0 | 32·2 |
| Mixed yarn (Million lbs.) ... | 0·70 | 2·0 | 0·7 | 1·5 | nil | nil | nil | nil | nil | nil |
| Silk yarn (Million lbs.) ... | 0·01 | 0·2 | 0·1 | 0·8 | 0·05 | 0·6 | NA | NA | NA | NA |
| Total ... | 8·71 | 31·2 | 8·7 | 19·6 | 9·85 | 19·6 | 2·6 | 5·0 | 11·0 | 32·2 |

(1) *Source* : 1951-52—1954 data, C. S. O. Bulletins.
1955-56 data, Planning Board estimates.

(2) The values for 1955-56 have been adjusted to reflect the new exchange rate.

86. Of the estimated 4,000 power looms installed in mid-1955, only 40 to 50 were located in East Pakistan, all in a single factory at Chittagong. We recommend the installation of 600 additional art silk power looms in East Pakistan to meet local requirements for art silk cloth. No new looms are provided for West Pakistan. The cost of the additional looms is estimated at 4·8 million rupees. Another 1·2 million rupees will perhaps be spent in modernising existing plants, bringing the total expenditure during the Plan period to 6·0 million rupees.

87. The Plan provides for a viscose rayon plant with a capacity of 7·2 million pounds of yarn per year. This plant is discussed later under rayon and cellophane. Although it will not satisfy the entire requirements of the power loom industry, it will go a long way towards alleviating the shortage of art silk yarn.

88. Very little natural silk yarn is being produced in the country ; the total estimated is 50,000 pounds per year, almost all of which is produced in East Pakistan. Imports have also been small, averaging only 54,000 pounds per year over the past three years. This total availability of about 100,000 pounds must be shared with the handlooms.

### Hosiery and knitted goods

89. At present there are 75 knitting factories in the country producing a variety of underwear, stockings and socks, scarves and sweaters, and similar goods from art silk, cotton and woollen yarn. The rayon and some of the finer quality wool and cotton yarns are imported. The industry has operated below capacity for the past two years, because of a shortage of imported materials and replacement parts. The plan provides 1·8 million rupees for expanding some of the existing factories and another 1·2 million for modernisation.

### Apparel

90. The apparel, or ready-made garment industry, although started only recently in organised factories, has had a rapid growth. Today there are 13 units qualified to register under section 2 (j) of the Factories Act. There are many more apparel factories than this, but most of them do not employ power, and hence are not registerable under section 2 (j). We are of the opinion that there is considerable scope for expansion in this industry, and have therefore provided 4·0 million rupees for 20 new factories at an estimated cost of 200,000 rupees each. It is essential that these factories should be dispersed throughout the country, and not concentrated in large cities. Another 1·1 million rupees is recommended for modernisation of existing factories.

## WOOD PRODUCTS

### Saw milling

91. Wood production for the whole of Pakistan is estimated at about one million tons at present. Of this, about 75 per cent is firewood and 25 per cent timber. A rough estimate of the forest area of Pakistan from which timber is extracted is about 6·6 millon acres (3·4 in West Pakistan, and 3·2 in East Pakistan). After deducting the treeless pockets, the actual forests may be estimated at 5 million acres. Saw milling consists of the process of cutting the logs into planks and scantlings of different sizes before the timber becomes of commercial use. Saw mills in Pakistan use power-driven circular saws or endless saw blades. Equipment is simple and the process is easy. It has a quick turn-over and does not require a large investment. In West Pakistan much of the saw milling is done at Jhelum where timber logs are transported down the river from Azad Kashmir. Jhelum is a central timber market, with Mardan as another such town. In East Pakistan, Chittagong and Sylhet are the main places for sawing. In all there are 14 organised factories employing power, and many smaller units, especially in East Pakistan, where sawing is also done manually. As new saw-milling schemes are included with timber extraction schemes in the chapter on Agriculture no provision is made here for investment in this industry.

### Woodware (mostly furniture)

92. Furniture manufacturing has grown rapidly with the growing needs of the people. This trade involves mostly handicraft and manual work, and the artisans in this industry are very skilful. The occupation is largely hereditary and at partition many of the best artisans came to Pakistan. Pakistan produces approximately 23 million cubic feet of timber annually, out of which only about 3 million cubic feet is suitable for furniture making. Best quality teak, which is an ideal timber for furniture making, is not found in Pakistan, but a species of inferior quality is found in the Chittagong Hill Tracts, and of that about 18,000 cubic feet is extracted annually. A limited quantity of teak is also importd from Burma and Malaya. In view of the present shortage of teak, other local timbers are now utilised for furniture making, especially shisham, deodar, kail, chapalish, chikrasi, and passur. Furniture making is mostly done on a cottage industry basis. There are, however, about 11

organised factories and workshops fitted with modern wood-working machinery. Because we think this sufficient to meet the needs for the Plan period, no new capacity is recommended before 1960.

93. The Plan provides Rs. 0·6 million for modernisation of the existing industry and none for increasing capacity. The manufacture of shuttles and bobbins and other industrial woodware is covered by the small-scale and cottage industry programme.

**Plywood and tea chests**

94. The manufacture of plywood has been started in two factories, one in Karachi and the other in Lahore. Another is being set up in Chittagong. Production from the existing factories is inadequate to meet requirements, even for the manufacture of tea chests alone. The tea crop of 55-60 million pounds forecast for the Plan period will require 5,600,000 tea chests, using about 10 million square feet of plywood for construction. Most of these chests are now being imported. The capacity of the two factories now in operation totals about 4·5 million square feet, and another 0·5 million square feet is produced in small shops, bringing the total production to about 5·0 million square feet.

95. The Plan provides 1·2 million rupees for completing the establishment of the Chittagong factory on the understanding that its production of about 4·0 million square feet will be used only for making tea chests. Another 0·4 million rupees is provided for modernising the existing factories.

## PAPER

96. At the time of partition no paper was made in the country except in a few places like Jhelum and Sialkot, which produced some hand-made paper of indifferent quality.

**Printing, writing, and wrapping paper**

97. A modern paper mill based on bamboo pulp was recently established by the PIDC on the Karnaphuli River in East Pakistan at a cost of Rs. 60·0 million. It has a capacity of 30,000 tons per annum of writing, printing, and wrapping paper. The country's requirements of writing, printing, and wrapping paper are at present estimated at 20,000 tons per annum, leaving a surplus for increased consumption or export. Additional capacity for 12,000 tons of mechanical printing paper is included in the newsprint plant discussed below.

**Newsprint**

98. Newsprint is not now produced in the country. The PIDC has completed investigations for the establishment of a newsprint factory in East Pakistan, probably at Khulna, where soft-wood for mechanical pulp is available in abundant supply from the forests of the Sunderbans. The proposal is to produce 23,000 tons of newsprint and 12,000 tons of mechanical process-printing paper. U.N. experts have already submitted a report on the feasibility of this project, and a private firm has prepared a scheme. The proposed mill is to have two paper machines, one to produce newsprint on a continuous basis, and the other to produce printing paper on a batch basis. The mill will be self-contained in wood preparation, pulp manufacture, paper making and finishing, water supply, steam and electric power, and employee housing. The Plan provides 107·4 million rupees for this plant, out of which a total of 89·6 million rupees is expected to be the foreign exchange component. The estimated value of the product is 25·8 million rupees per year. There should be considerable surplus from this plant for export.

**Card and straw-board**

99. Straw-board and card board are the basic packaging materials of most industries. Pakistan possesses large quantities of fibrous raw materials in the form of wild grasses and wheat and rice straws which are quite suitable for the card and straw-board industry. The country has been until now dependent for its requirements entirely on imports. The

PIDC has established a high-grade board factory at Nowshera, which has been designed to manufacture board from grass by the monosulphite process. The installed capacity is 30-32 tons per day, or an average of 7,500 tons per annum. The mill is designed to secure flexibility of production so as to produce both board and paper to suit the market trends. A straw-board mill has been set up at Rahwali in Gujranwala District of the Punjab. It has been designed to produce 30 tons of straw-board and wrapping paper per day, or about 7,500 tons per annum, from rice straw.

100. These mills will together cost Rs. 30·7 million for the production of 15,000 tons of card and straw-board, the value of which is expected to be Rs. 16·9 million. Of the total investment of 30·7 million rupees only 3·8 million rupees remained outstanding at June, 1955. The Plan provides for an additional card and straw-board mill in East Pakistan where raw materials are found in abundance. The plant would cost 46 million rupees, and produce 20,000 tons of card/straw-board per annum, valued at 23·1 million rupees. This scheme should perhaps be commenced late in the Plan period, after the PIDC has had experienced in the operation of the Rahwali and Nowshera mills.

**Hard-board**

101. Hard-board is a very good substitute for wooden planks or plywood. It is a product made of paper pulp or fibres, and fillers with a suitable binding material. During the last three years the country has been importing considerable quantities of hard-board. The raw materials for this industry are found in abundance in East Pakistan. The Plan provides for establishing one factory there of 12,000 tons capacity at an estimated cost of Rs. 19·2 million, out of which the foreign exchange component is estimated to be 10·5 million. The annual value of the product will be 13·2 million rupees. The development programme for the paper industry is summarised in Table 11.

TABLE 11

*Present and proposed investment in the paper industry,* 1955—60

| Plant Location | Product | Total investment (Rs. million) | Investment in Plan period (Rs. million) | Annual capacity Quantity (tons) | Annual capacity Value (Rs. million) |
|---|---|---|---|---|---|
| Nowshera (N.W.F.P.) ... | Paper board & high-grade writing paper. | 18·5 | 2·0 | 7,500 | 9·4 |
| Rahwali (Punjab) ... | Straw-board & wrapping paper. | 12·2 | 1·8 | 7,500 | 7·5 |
| Chandragona (East Pakistan). | Writing, printing, & wrapping paper. | 60·0 | *Nil.* | 30,000 | 49·1 |
| Proposed at Khulna (East Pakistan). | Newsprint & printing paper | 107·4 | 107·4 | 35,000 | 25·8 |
| Proposed in East Pakistan | Hard-board ... | 19·2 | 19.2 | 12,000 | 13·2 |
| Proposed in East Pakistan | Card & straw-board ... | 46·0 | 46·0 | 20,000 | 23·1 |
| | Total ... | 263·3 | 176·4 | 112,000 | 128·1 |

## LEATHER AND PRODUCTS

### Leather tanning

102. The country now has some 54 large-scale tanneries with an annual capacity of 17 million square feet of upper and 16 million pounds of sole leather, which is more than enough to provide tanned leather for domestic uses, but not enough to tan the hides and skins sold abroad. Pakistan ranks among the largest producers and exporters of hides and skins, the total annual production of which comes to about 15 million pieces. Table 12 shows the supply and consumption of hides and skins for the year 1952-53.

TABLE 12

*Net available supply and consumption of hides and skins in Pakistan, 1952-53*

(Thousand pieces)

| Product | | Production | Exports | Imports | Net available supply | Consumption in | | | Utilized for making and repairs of | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Modern tanneries | Village tanneries | Raw state | Foot-wear | Agricultural goods | Industrial goods |
| Hides | ... | 5,400 | 2,815 | (1) 16 | 2,601 | 1,700 | 876 | 25 | 2,393 | 130 | 78 |
| | | | | | (100·0%) | (65%) | (34%) | (1%) | (92%) | (5%) | (3%) |
| (2) Skins | ... | 9,916 | (3) 8,948 | (1) 131 | 1,099 | 600 | 477 | 22 | 769 | 110 | 220 |
| | | | | | (100·0%) | (55%) | (43%) | (2%) | (70%) | (10%) | (20%) |
| Total | ... | 15,316 | 11,763 | 147 | 3,700 | 2,300 | 1,353 | 47 | 3,162 | 240 | 298 |
| | | | | | (100·0%) | (62%) | (37%) | (1%) | (85%) | (7%) | (8%) |

*Source* : Marketing of Hides and Skins in Pakistan, Report by Secretariat, U. N. Economic and Social Council, November, 1954.

*Notes* :— (1) Dressed pieces only.
(2) Includes fur and fancy skins.
(3) Includes 1,000 dressed pieces.

Annual production is estimated at 5·4 million hides (kips and buffs), 7·7 million skins (sheep and goat) and 2·2 million furs and fancy skins (included under " Skins " in Table 12). Of this availability, about 77 per cent or 12 million pieces, was exported in 1952-53. Since then the percentage of hides and skins utilised internally has increased somewhat. Also, the ratio of modern to village tanning has increased. But, all things considered, the picture has not altered appreciably.

103. Table 12 indicates the potential for expansion of the tanning industry for export. Certain difficulties stand in the way of rapid expansion, however. The quality of Pakistan leather is not good enough to compete easily in the export market, mechanised tanning is new in the country, and much remains to be learned. Also, the quality of hides and skins is frequently poor, a considerable proportion of them being damaged through careless flaying and curing. In addition, the industry must import at present almost all of its chemicals and tanning solutions.

104. Nevertheless, a start should be made during the Plan period on the development of this industry for export. The Plan provides for the installation of two modern tanneries, one in each Wing, designed for export production of upper leather, and also to serve as model plants for the improvement of quality and the training of management and workers throughout the industry. The cost of these tanneries is estimated at 3 million rupees each. Another 6·5 million rupees is provided for modernising many of the existing plants, bringing the total investment during the Plan period to an estimated 12·5 million rupees.

### Leather shoes

105. There are 12 organised factories which are fully or partially mechanised. One of these factories is quite large, and all but one are in West Pakistan. It is estimated that these factories have an investment of about 20 million rupees in productive capital, and a capacity of 15 million pairs of leather shoes per year. The cottage and small-industry sector turns out about 12 million pairs a year, giving a total capacity of about 27 million pairs. The annual footwear requirements given by various authorities and the representatives of the trade are very conflicting. After reconciling these figures and making an analysis of our own, we estimate the requirements of leather shoes at about 25 million pairs per annum for the Plan period.

106. No investment in increased capacity for large factories is proposed, as the balance of requirements should continue to be supplied by the cottage shoemakers. An investment of 2·0 million rupees has, however, been provided in the Plan for modernising the existing industry.

## RUBBER PRODUCTS

107. Unfortunately the rubber products industry now depends entirely on imported rubber. There are reported to be places in East Pakistan where natural rubber can be grown. One report, prepared by a private industrialist, estimated that 40,000 acres of land could produce 35,000 tons of rubber per year within 8 years. Because we understand that large rubber users are predicting a world-wide shortage of natural rubber within the next few years, we recommend that the Government should take action to see that the possibility of cultivating rubber in East Pakistan is thoroughly explored. It may also be practical to produce synthetic rubber from Sui gas, but this possibility should not interfere with the growing of rubber in East Pakistan, since there will probably continue to be a good export market for natural rubber.

The rubber products industry consists mainly of cycle tyres and tubes, rubber-soled canvas and all-rubber shoes, and retreading of automobile tyres. Hose pipes and brake linnings, rubber sheets, tubes, matting and sundry other goods are also manufactured.

### Cycle tyres and tubes

108. There was practically no rubber industry before partition, and the production of cycle tyres and tubes was non-existent. At present there are 12 units engaged in the manufacture of cycle tyres and tubes, with a capacity to produce 1 million cycle tyres and 2 million cycle tubes per year. Productive capital of 4·7 million rupees is estimated to have been invested in these units. The Plan provides a sum of 1·2 million rupees for the modernisation of the existing units. Since capacity now exceeds estimated requirements, no investment for increased capacity is provided.

### Motor tyres and tubes

109. One Karachi company has invested Rs. 2·0 million in equipment with capacity to produce 100,000 motor tyres and 120,000 motor tubes per year. The required total investment to enable the factory to go into production has not hitherto been made. The programme provides Rs. 1·4 million to complete the investment. The value of the product

of this plant is estimated to be Rs. 12·3 million. Two factories are now retreading old tyres, but not producing new ones. They have an estimated capital of 200,000 rupees invested in retreading machinery and the Plan provides another 300,000 rupees for additions to this equipment. The capacity for retreading is expected to increase from 7,000 tyres to 14,000 tyres per year by 1960. The value of the product will then be about 1·5 million rupees per year.

### Rubber-soled canvas shoes

110. There are 6 units, 4 in West and 2 in East Pakistan with an annual effective capacity of 9 million pairs, in which a capital of Rs. 3·5 million has been invested. The Plan provides one million rupees for modernisation of the existing units only ; no new capacity is considered necessary.

### Other rubber products

111. This covers a variety of articles, including household and surgical goods, toys, and hose pipes. There are 23 units, most of which also produce either cycle tyres or rubber shoes. Capital of Rs. 1·5 million has been invested in a capacity to produce 1,275 tons of various articles. As the capacity is surplus to the requirements of the country, and the industry is mainly dependent on imported raw materials, no investment in increased capacity is expected.

## CHEMICAL INDUSTRIES

### Sulphuric acid

112. Sulphuric acid is an essential raw material in a wide variety of basic industries including fertilisers, chemicals, petroleum refining, paper, and rayon. The consumption of sulphuric acid is sometimes used as an index of industrial activity. Its cost is very high in Pakistan today because of the small quantities produced, and limitations on imported sulphur. This may have a constricting effect on the development of using industries. A basic technical-economic study is required to determine the cheapest and best process for making sulphuric acid under local conditions. It is possible that the recovery of sulphur from Sui gas may prove economical, or that the process of producing sulphuric acid from gypsum in conjunction with cement is economically feasible. These matters should be studied before the increased capacity we recommend is commenced.

113. At present there are 3 modern units and 2 very old units, with a total annual capacity of 12,330 tons per year. Most of the output of two of the modern units (Lyallpur and Chandroghona) is expected to be used on the spot ; only 3,000 tons from the one in Karachi, and 330 tons from the old plants at Sukkur and Rawalpindi are available for commercial purposes. The Plan provides for the establishment of two new 3,000-ton plants, one in each Wing, to increase the capacity by another 6,000 tons per annum at an investment cost of 2·5 million rupees. Investment in these plants is expected only towards the end of the Plan period. The total effective capacity will then amount to 18,330 tons per annum. A sum of 200,000 rupees is also provided in the Plan for modernising existing plants.

### Soda ash

114. Soda ash is used primarily in the making of glass, and in textile finishing. At present there is only one soda ash plant in Pakistan. It is located at Khewra in the salt range, and has a rated capacity of 25,000 tons per annum. Its average production is about 24,000 tons. This is not sufficient to meet present requirements because some is being imported, and the market price is very high. Since the investment programme contemplates increased capacity in both glass making and textile finishing, additional quantities

of soda ash will have to be made available. The country is well-endowed for the production of soda ash, since the main ingredient is common salt. The Salt Range provides one of the purest deposits of rock salt in the world, and sea salt is produced in abundance in West Pakistan. The continued import of this product is therefore not desirable.

In the following paragraphs on caustic soda, is described the Solvey-process caustic soda plant which it is proposed to commence as soon as possible. This plant will also produce 11,000 tons a year of unconverted soda ash. This, in addition to what is now being produced, is expected to meet requirements for some time. The investment required is shown as nil in Table 1 because it is included in the 40·9 million rupees cost of the caustic soda development programme.

### Caustic soda

115. The principal users of caustic soda in Pakistan today are the soap and paper industries. There are two plants in operation now, each of 3,000 tons a year capacity. One is at the Karnaphuli paper mills, which use its entire output, and the other is at Nowshera, where most of its production goes directly to the card-board plant located there. The country is at present importing 8-9,000 tons per year for the soap industry and miscellaneous users.

116. We recommend that the country should be made self-sufficient in this product as soon as possible. A 100 tons a day Solvey-process plant is recommended to be built in the Plan period. This process is recommended, although slightly more expensive than the electrolytic process, because it does not create the problem of chlorine disposal. At the first stage of the production process, this plant will yield 36,000 tons of soda ash of which 25,000 tons will be converted to 17,000 tons of caustic soda. The remaining 11,000 tons of soda ash will be sold as such. Of the 17,000 tons of caustic soda produced, 7,000 tons will be purified to rayon grade for use in the viscose rayon plant described in paragraph 130 below. The remaining 10,000 tons will be available to the market to replace imports. Two sites are available for this plant : in the Salt Range near the present soda ash plant, in which case it would operate on rock salt, or near Karachi to operate on sea salt. Each location has its advantages, the Karachi location having the obvious advantage of easy export. Further study is required before a recommendation can be made. A second plant is also provided for East Pakistan. This is to be a 3,000-ton per year electrolytic plant. The chlorine by-product will be utilised chiefly by the D.D.T. plant to be constructed near the caustic soda plant. The D.D.T. plant is described in para. 133 below.

117. The cost of the West Pakistan plant is estimated at Rs. 37·4 million, and of the East Pakistan plant at Rs. 3·5 million, a total of Rs. 40·9 million, of which Rs. 24 million will be foreign exchange. Because there is some doubt whether private capital will be forthcoming in this amount, and, since these plants are critical to the operation of three major industries, we suggest that the P.I.D.C. should be authorized to commence their construction if private capital is not forthcoming and therefore the full cost has been included in the P.I.D.C.'s programme. If, however, efficient private firms can be interested in undertaking these investments, the P.I.D.C. should withdraw. We hope that, even if the P.I.D.C. undertake these projects, one-third of the capital will be subscribed by private interests. The value of the total annual production of these plants will be about Rs. 13·2 million, of which Rs. 4·0 million will be in soda ash and Rs. 9·2 million in caustic soda.

### Fertilisers

118. The country requires a very large amount of cheap fertilisers for increasing crop production and maintaining the fertility of the land. With this object in view the Government through the P.I.D.C. is building two fertiliser factories, one for ammonium

sulphate (50,000 tons per annum capacity) at Daud Khel and another for superphosphate (12,000 tons per annum capacity) at Lyallpur. A sum of 55·5 million rupees has already been invested in these factories, and further capital is required to complete them. The Plan provides for further investment of 77·2 million rupees, including the investment required for the completion of these two plants. The provision contemplates establishing one new nitrogenous fertiliser plant of 100,000 tons annual capacity based on Sui gas. The capacity of this plant is not finally determined; late in the stages of preparing the Plan, the estimated requirements for fertiliser were substantially raised, and it may be that further study will indicate the desirability of increasing the capacity of this plant. The total effective capacity in 1960 would therefore be at least 150,000 tons of nitrogenous fertilisers and 12,000 tons of superphosphate per year. The foreign exchange component of the investment is estimated at Rs. 45·7 million. We estimate the total value of fertiliser production at Rs. 59·5 million per annum by 1960.

### Pharmaceuticals and fine chemicals

119. There are an estimated 56 factories in the country now producing a wide variety of fine chemicals, drugs, galenicals, extracts, and tinctures. The production of these items is valued at about 8 million rupees per year. Approximately 20,000 pounds of santonine and ephedrine are produced annually from the artimisia and ephedra herbs found wild in and around the Kurram valley. At partition only 6 factories in the country produced galenicals and syrups. The number has since grown to 33 with a capacity of about 0·2 million gallons per year. Quality is not always good, however, and the medical profession is sometimes reluctant to prescribe them. There are a few modern factories now producing injections and tablets of acceptable quality, but their production is not sufficient to meet requirements.

120. The Plan provides a total of 20·4 million rupees for increasing the capacity of this industry. Ten million rupees is for a large pharmaceutical and drug factory to be built by the P.I.D.C. in East Pakistan. Another 0·4 million rupees is to complete the P.I.D.C.'s investment in the Kurram Chemical Company, bringing the total P.I.D.C. investment in this industry to 10·4 million rupees during the Plan period. Another 10 million rupees is provided for further development of the industry in West Pakistan. It is expected that a fine chemicals industry, based on more readily available sulphuric acid, will develop soon to produce alums, sulphates and chromium salts, especially sodium dichromate, which is required to the extent of 6-7,000 tons per year by the tanning industry. In addition to the above provision for increased capacity, the Plan also provides 2·0 million rupees for modernising existing plants.

### Penicillin

121. The only antibiotic that is universally used for a number of diseases is penicillin, for which a plant has been proposed, to be established in collaboration with the World Health Organisation by the P.I.D.C. The capacity of the plant will be 8 million mega-units per annum, which is approximately what is being imported now. The technical personnel and part of the equipment will be supplied by the W.H.O., who will also train the Pakistani personnel eventually to operate the plant. A provision of 9·1 million rupees is calculated to cover the cost of the plant, which will produce penicillin worth about 9·0 million rupees annually. The foreign exchange component of the investment is estimated at 5·7 million rupees.

### Dyes

122. Imports of organic dyes have been large during the last 3-4 years, and their consumption is still increasing. The technical consultants of the P.I.D.C. on examination found that two particular dyes, congo red and sulphur black, have been imported in large quantities as Table 14 shows.

TABLE 14

*Import of congo red and sulphur black*, 1951—54

(Rupees)

| | 1951-52 | 1952-53 | 1953-54 | Average 1951-52 |
|---|---|---|---|---|
| Congo red ... ... ... ... | 963,810 | 261,293 | 691,216 | 638,773 |
| Sulphur black ... ... ... ... | 530,323 | 1,077,032 | 615,110 | 740,824 |

123. The dye-stuff industry is highly complex, and involves not only trade secrets and patents but the existence of an organic chemcial industry which is non-existent in Pakistan so far. However, as a result of their investigation, two firms of dye manufacturers advised that congo red and sulphur black could be produced in this country by importing some intermediates and finishing them here. They prepared a scheme for the construction of a factory for the manufacture of 250 tons of congo red and 300 tons of sulphur black per year as a beginning. The capital proposed in the schemes is Rs. 5·9 million, of which the consultant companies will subscribe 30 per cent, the balance of 70 per cent being provided by the government through the P.I.D.C. According to the scheme, the P.I.D.C. expect to import about 1·5 million worth of intermediates, etc. and produce dyes worth Rs. 2·9 million.

### aints and varnishes

124. There are 18 paint and varnish factories in Pakistan, of which 6 are of fair size. They are producing wet and dry lead paints, hubbacks, varnishes, lacquers and distempers in a number of qualities and a variety of colours. The capacity of these 18 units is estimated at 36,000 tons per annum. Inspite of production being less than capacity, superior grades of paints and varnishes have been imported as shown in table 15.

TABLE 15

*Paint and varnish imports*, 1951—54

(Rupees)

| | 1951-52 | 1952-53 | 1953-54 |
|---|---|---|---|
| Varnishes, enamels ... ... ... ... ... ... | 223,195 | 381,878 | 86,151 |
| Moist paints coloured ... ... ... ... ... | 1,596,810 | 1,315,709 | 764,798 |
| Other paints and varnishes ... ... ... ... ... | 3,020,107 | 3,830,094 | 2,310,465 |
| Total ... | 4,840,112 | 5,527,681 | 3,161,414 |

*Source* : C.S.O. Bulletins.

125. Most of the raw materials required are not found locally. Some of the pigments are available in an unprocessed state but their utilisation is not without difficulties. Only small amounts of linseed oil, castor oil, and tung oil are available in the country. Rosin and vegetable turpentine and mineral turpentine are, however, manufactured in the country, but not in sufficient quantity. Containers are very important for the industry and are made locally from imported sheets. Approximately 75 per cent of the raw materials used in the paint and varnish industry are imported, chiefly from India. As the capacity of paints and varnishes approximates the present requirements of the country, no new capacity is contemplated during the plan period ; a sum of Rs. 1·9 million has been provided for modernisation only.

### Matches

126. There were 3 large organised match factories in Pakistan before partition, one in East and two in West Pakistan. Matches were also made on a cottage industry scale. At present, there are 14 units with a total capacity of 12·2 million gross boxes (20 and 30 sticks). Many of the raw materials, especially chemicals, are not found in Pakistan. Suitable wood is abundant in East Pakistan, and there are possibilities of finding good quality wood in West Pakistan. As the existing capacity is sufficient to meet the requirements of the country for the time being, no new capacity is recommended during the Plan period. A provision of Rs. 1·8 million has been made for modernisation only.

### Soap

127. There was no organised large-scale soap manufacture in Pakistan before partition, although soap was being produced on a cottage scale by cold and semi-boiled processes. Since then 6 factories (4 in West Pakistan and 2 in East Pakistan) have been established, with a total capacity of 25,000 tons of washing and toilet soap. The productive capacity in East Pakistan is 1,500 tons of toilet soap, 3,000 tons of washing soap, and 450 tons of glycerine. The units in West Pakistan have a capacity of 4,500 tons of toilet soap, 16,000 tons of washing soap, and 250 tons of glycerine. Production has never reached capacity, because of a shortage of raw materials, especially tallow and vegetable oils. Approximately 60 per cent of capacity—15,000 tons of toilet and washing soap—is produced annually. Since the present capacity covers the requirements of the country until 1960 at least, no provision in the development programme has been made for increased capacity. A provision of Rs. 2·9 million has, however, been made for modernising some of the units.

### Rayon (art silk) and cellophane

128. Rayon cloth has become a necessary consumer's item in Pakistan. Even in the smallest village it is in great demand for holiday dress and as a symbol of luxury. In the absence of real silk there is nothing that can take its place. Women especially demand it because it holds brilliant colours, and is something different from the cotton cloth of everyday life. By objective standards it is a poor fabric for hot climates, since it holds the body heat, washes poorly, and loses shape. Nevertheless, it is in such demand that it now sells for twice the price of best quality cotton cloth, and it seems unlikely that fine cotton cloth will displace rayon as the average man's luxury cloth.

129. The consumption of rayon yarn and cloth, all of which has been imported to date, is shown in Table 16.

### TABLE 16

*Estimated imports of art silk yarn and cloth*, 1951—56 (1).

| | 1951-52 | | 1952-53 | | 1953-54 | | July—Dec. 1954 | | 1955-56 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Volume | Value Rs. M. | Volume | Value Rs. M. | Volume | Value Rs. M. | Volume | Value Rs. M. | Volume | Value(2) Rs. M. |
| Yarn ... (Million lbs.) | 8·0 | 29·0 | 7.9 | 17·3 | 9·8 | 19·0 | 2·6 | 5·0 | 11·0 | 32·2 |
| Mixed yarn ... (Million lbs.) | 0·7 | 2·0 | 0·7 | 1·5 | *Nil* | *Nil* | *Nil* | *Nil* | *Nil* | *Nil* |
| Cloth ... (Million yds.) | 18·2 | 23·5 | 27·8 | 23·5 | 0·3 | 0·3 | 1·2 | 1·3 | 2·0 | 2·8 |
| Total value ... | ... | 54·5 | ... | 42·3 | ... | 19·3 | ... | 6·3 | ... | 35·0 |

(1) *Source* : 1951/52—1954 data, C.S.O. Bulletins ; 1955/56 data, Planning Board estimates.

(2) The values for 1955/56 have been adjusted to reflect the new exchange rate.

The price of rayon was abnormally high in 1951-52. In calculating the cost of rayon yarn, we used the average 1952—54 figure—Rs. 2/1 per lb. It should be noted that the 1954 figures are for July to December only. At an annual rate, 1954-55 was considerably below the previous two years usage. The power-loom weavers who depend on rayon yarn as a raw material, and the consumers who pay exhorbitant prices for rayon cloth have been vocal in directing attention to the evils resulting from the restricted import of rayon yarn. The average rate of usage of rayon yarn and cloth during the period 1952—54 has been Rs. 27·1 million per annum. Imports of Rs. 25·0 million are estimated for 1955-56. This is the equivalent of 11·7 million pounds of rayon yarn, and represents our estimate of a justifiable consumption level in a period of national austerity.

130. A plant to produce rayon yarn and cellophane from cotton linters is recommended. We suggest that this plant should operate on cotton linters and not on imported wood pulp. Cotton linters are an ideal source of cellulose for rayon production, and they are available in sufficient quantity in the country. With proper delinting in the oil mills, and organised gathering systems, even greater quanties can be made available. There is no logic in setting up a plant to produce rayon from imported wood pulp, when ideal raw material is locally available. It is also recommended that viscose rayon and not acetate should be produced. Viscose rayon has a higher wet strength, dyes easier, and does not suffer from excess heat in ironing as much as does acetate rayon. An economic unit produces 10 tons a day of rayon filament and 5 tons a day of cellophane. It must be an integrated plant, producing its own major chemical constituents with the exception of caustic soda. It would thus contain a linters plant, viscose plant, spinning plant, sulphuric acid plant, carbon disulphide plant, cellophane plant, air-conditioning plant, and steam and power plant. The cost of this industrial complex would not be less than Rs. 70·2 million of which about Rs. 45 million would be foreign exchange. The value of the

product, both filament and cellophane, would be about Rs. 31·3 million per year. Although this plant would produce only 7·2 million lbs. of rayon yarn per year, and thus fall short of the estimated requirements by 4·5 million lbs., we do not recommend that a second plant should be built in the Plan period. Present requirements do not quite justify two units of economic size. Furthermore, the investment is so large, and the foreign exchange component so high, that it would not be wise to start a second plant until the first plant had been in operation for some time. We therefore recommend that additional requirements should be met by imports. When a second plant is decided upon, full consideration should be given to the possibility of locating it in East Pakistan where ample supplies of wood for pulp are available.

131. In the siting of the proposed plant, it should be kept in mind that it must be located where flowing water is plentiful. In the case of this plant, especially, the Government should require that the private industrialist purchasing the equipment abroad should buy a type which can be relied upon to function well for many years. A cheap, decrepit, or second-hand plant will not serve the country's needs. The sanctioning of a rayon plant should not provide an opportunity for inordinate profits realised through high prices and minimum capital investment ; the foreign exchange involved is too great for the Government to tolerate its being wasted on a plant which may soon be obsolete and derelict.

### Turpentine and rosin

132. One unit is in production at Jallo near Lahore with a small invested capital of about Rs. 0·4 million, and a capacity to produce rosin and turpentine valued at Rs. 0·9 million annually. As this unit is obsolete and unable to meet the requirements of the country for quality turpentine and rosin so widely used in paint and varnish manufacture, the P.I.D.C. in conjunction with the former N.W.F.P. Government and private interests undertook to establish another and bigger unit in a suitable place in the N.W.F.P. where soft pinewood is economically available. The total cost of this unit is to be 1·2 million rupees. The P.I.D.C. share, 0·2 million rupees, was already spent before the Plan period started and therefore is not shown under colunm (7) of Table 1, but rather is added to the total investment at June 30, 1955, which is shown in column (4). The former N.W.F.P. Government sanctioned an outlay of 0·5 million rupees for this plant, and this commitment has since been assumed by the West Pakistan Government. As such, it is included under public investment in column (11), of Table 1, but is not added into the P.I.D.C. total programme. Another 0·5 million rupees is to be provided by private interests. The P.I.D.C. have practically given up responsibility for this project, leaving it to the private industrialists.

### D.D.T.

133. A D.D.T. plant with an annual capacity of 700 tons of hundred per cent D.D.T. has recently started production at Nowshera. This plant was built by the P.I.D.C. at a total cost of Rs. 3·5 million of which Rs. 1·2 million was contributed by the World Health Organisation. Another plant of the same type and capacity, but estimated to cost slightly more because of revaluation, is provided in the Plan for East Pakistan. It will utilise chlorine from the caustic soda plant also to be established there during the Plan period. The cost of the additional plant will be about 4·3 million rupees, of which the foreign exchange component will be 2·5 million. The P.I.D.C. will undoubtedly have to take the initiative in establishing this plant.

**Petroleum refining**

134. The Attock Oil Co.'s petroleum refinery is the only plant of its kind in Pakistan. It is located at Rawalpindi—Morgah and was raised to its present production capacity of 4,500 barrels per day in several stages since it was first begun in 1922. In 1954, it processed 253,000 tons (approximately 93 per cent of capacity) of crude oil into products totalling in value some 30 million rupees. In addition to Lummus atmospheric and vacuum distilling units, this plant has Dubbs thermal cracking and catalytic polymerisation units, though these did not prove economical in operation and are standing idle. Petrol, white spirit, kerosene, diesel oils, and fuel oil are the plants' principal products. High-class lubricating oils are made by freezing and chemical (Duosol) treatment of appropriate crude fractions. Commercial liquid fuels are made by successive treatment of petrols and kerosene by acid and soda. Paraffin wax, resulting from the refining of lubricating oils is processed into candles after bleaching, or is sold as such. Processing of Joya Mair crude results in considerable recovery of bitumen, which finds a ready market for road surfacing. Individual products are sold in tank cars and barrels, or in tins of various sizes and types made in the plant.

135. The question of expanding this industry depends on the future availability of crude oils. Rawalpindi could with little investment expand its output through alteration in its product ratio, if more crude oil were available. Need might arise, also, for a refinery in East Pakistan should the search for oil there prove successful. No provision has been made in the development programme, however, for increased capacity, but a sum of Rs. 3·6 million has been provided during the Plan period for replacement and modernisation. The output of the Rawalpindi refinery is given in Table 17.

TABLE 17

*Production of Rawalpindi oil refinery*, 1949—54

| Product | 1949 | 1950 | 1951 | 1952 | 1953 | 1954 |
|---|---|---|---|---|---|---|
| Motor spirit * ... ... | 6,106 | 10,415 | 11,157 | 15,101 | 16,950 | 19,076 |
| Kerosene* ... ... | 994 | 2,061 | 1,834 | 2,323 | 2,385 | 2,825 |
| Mineral turpentine* ... | 101 | 104 | 133 | 181 | 82 | 111 |
| Diesel oils* : Light ... | 885 | 1,879 | 2,219 | 3,620 | 5,585 | 5,769 |
| High speed ... ... | 442 | 417 | 602 | 2,230 | 3,477 | 6,507 |
| Furnace oil* ... ... | 15,193 | 24,504 | 25,194 | 23,749 | 27,672 | 25,846 |
| Lubricants* ... ... | 167 | 544 | 276 | 371 | 440 | 986 |
| Paraffin, tons ... ... | N.A. | N.A. | 88 | 157 | 235 | 483 |
| Bitumen, tons ... ... | N.A. | N.A. | 10,000 est. | 13,760 | 10,140 | N.A. |

*Thousand Imperial gallons.

*Source* : Explanatory Memoranda on the 1955-56 Central Government 's Budget.

136. It was estimated that in 1954 the Rawalpindi refinery supplied the following approximate portion of national requirements :

| | per cent. |
|---|---|
| Motor spirit ... ... ... ... ... ... ... ... ... | 48·3 |
| Kerosene ... ... ... ... ... ... ... ... ... | 4·3 |
| Diesel oils ... ... ... ... ... ... ... ... ... | 19·5 |
| Furnace oil ... ... ... ... ... ... ... ... ... | 21·6 |
| Lubricants ... ... ... ... ... ... ... ... ... | 4·5 |
| Solvents ... ... ... ... ... ... ... ... ... | 2·8 |
| Bitumen ... ... ... ... ... ... ... ... ... | 68·3 |

All aviation spirit had to be imported. We suggest that consideration should be given to the possibility of importing crude oil for refining in Pakistan, either at the Attock plant, or at a new plant near Karachi.

**Power alcohol**

137. The Power Alcohol Ordinance prescribes that power alcohol should be mixed with petrol, up to 25 per cent by volume, for general consumption, when power alcohol is available. This mixture actually enhances the burning quality of the petrol. Since this practice will substitute domestically-produced power alcohol for imported petrol to some extent and at no great cost, it is considered to be a reasonable government policy. There is no plant in the country now capable of producing power alcohol. The stills at and around Mardan (Murree Brewery, Frontier Sugar Mills and Carew and Co.) are producing industrial alcohol from molasses. We recommend that each sugar plant should be given an opportunity to install its own power alcohol still, or convert its present still to the production of power alcohol, if this can be shown to be economical. A sum of 2·0 million rupees is provided in the private sector in the Plan for this purpose .

## NON-METALLIC MINERAL PRODUCTS

**Structural clay products**

138. This sector includes all structural clay products, including bricks, tiles, and clay pipes. In addition to the numerous cottage-sized units there are 4 fairly large mechanised units with a capacity of 10,000 tons of bricks and tiles per year, in which a productive capital of about 6·0 million rupees has been invested. In view of the scarcity of building material like cement and iron, and the ambitious construction programme contemplated, it is considered necessary that alternate materials, actually superior in many respects, should be developed. Capacity for the production of clay drain pipe and clay sanitary pipe should be increased, not only to meet the increasing demand for these items, but also to displace some of the similar goods now being made from cement and iron. An investment of Rs. 7·3 million is provided in the Plan for setting up 2 more units, one in each Wing, to produce 10,000 tons each of bricks and clay products per year, bringing the total capacity to 30,000 tons by 1960. A sum of Rs. 1·2 million has also been provided for modernisation of the existing units.

**Glass**

139. *Hollow-ware.* There are 11 factories, with a capacity of about 20,000 tons of hollow-ware per annum, in which an estimated capital of 4·9 million rupees has been invested. Because of the use of impure and unwashed silica, shortages of other raw materials,

lack of annealing chambers and sound technical knowledge, production is below capacity, and the product suffers from the usual defects of a bad-quality glass. In spite of there being a considerable margin between capacity and production, we think that the country's requirements will not be met, especially in containers of the jar and bottle type even when the present units reach the full production level. The Plan contemplates the establishment of two up-to-date hollow-ware glass factories manned by technically qualified men which can produce high-quality glass from locally purified silica. These plants will cost about 5 million rupees each. Another 3·8 million rupees is provided for modernising the existing units. The effective capacity will increase by 18,000 tons a year, valued at 15·9 million rupees.

140. *Sheet Glass.*—At present there is no production of sheet glass in the country. The imports have been as follows :

| | Quantity Million sq. ft. | Value Rs. Million. |
|---|---|---|
| 1951-52 | 7·20 | 1·80 |
| 1952-53 | 4·92 | 0·49 |
| 1953-54 | 4·72 | 0·94 |
| July-Sept. 1954 | 4·44 | 0·65 |

The Plan provides for the establishment of one sheet-glass factory at a cost of 5 million rupees, to have a capacity of 14 million sq. ft. per year, valued at Rs. 2·3 million.

141. *Scientific glass.*—Simple types of scientific glass used in school and college laboratories are capable of being produced in the country. The demand for such glass is about 2-3,000 tons per year. As the demand is small, no separate provision has been made for it in the Plan. But it has been provided that the two hollow-ware glass factories will each have a 3-4 tons capacity pot furnace to produce scientific glass, thus giving an annual capacity of about 2000 tons. The quality of sand now known to be available in both East and West Pakistan is rather poor. It is extremely difficult to make good-quality glass from it. There is an alternative source of silica available in rice husks, which when burnt produce an ash of almost pure silica. It is estimated that 175,000 tons of silica could be made available from this source. The problem of gathering rice husks and burning them under suitable conditions is considerable, but the idea seems worthy of investigation, perhaps by the Council of Sientific and Industrial Research.

## Cement

142. The use of cement can be considered an index of the rate of general economic development. It is the common experience of countries which are newly developing their productive potential that cement is an item in ever increasing demand and chronically short supply. This certainly has been true in Pakistan. It has been found necessry to import increasing amounts of cement since 1951, although prior to that the country was self-sufficient, and before partition cement was actually being exported. The country is favourably endowed for cement production. The basic raw materials—limestone, clay and gypsum—are in abundant supply throughout most of West Pakistan. It remains only to choose a site where fuel and water are cheaply available. Until now this has been the major difficulty, but with the advent of Sui gas the situation has improved. Further expansion of cement production should be based on the use of gas for kiln fuel.

143. Table 17 shows the present and expected requirements for cement, and present and planned production during the Plan period. Since partition, cement consumption has increased from 325,000 tons to an estimated 760,000 tons in 1954-55, and is expected to increase to 1,200,000 tons by the end of the Plan period. Since 1951 production has lagged behind consumption, and because of the long construction period of cement plants, this shortage will continue until mid-1959. Table 18 shows the present and planned capacity for cement production. Two plants, in addition to the capacity under construction at Daudkhel and Hyderabad, are recommended. These need not be new plants, but may be expansions of present plants. Their rated capacities should total at least 350,000 tons. They must be located somewhere in West Pakistan, preferably on either the Sui-Lahore or Sui-Karachi gas pipe line.

### TABLE 17

*Requirements and capacity for cement production*, 1948—60.

(Thousand tons)

| Trade Year | Power, irrigation and reclamation | Bridges, roads, railways, and communications | Ship-yards, docks and wharfs | Private housing and industrial construction | Government buildings, and public housing | Other uses | Total use/requirements | Production, 1948—55, and planned capacity to produce 1955—60 | Deficit imported |
|---|---|---|---|---|---|---|---|---|---|
| 1948-49 | 65 | 60 | 20 | 100 | 60 | 20 | 325 | 325 | *Nil* |
| 1949-50 | 85 | 65 | 25 | 130 | 90 | 25 | 420 | 420 | *Nil* |
| 1950-51 | 80 | 65 | 25 | 135 | 85 | 25 | 415 | 415 | *Nil* |
| 1951-52 | 110 | 65 | 30 | 160 | 120 | 25 | 510 | 499 | 11 |
| 1952-53 | 150 | 80 | 30 | 180 | 135 | 25 | 600 | 530 | 70 |
| 1953-54 | 200 | 80 | 30 | 190 | 150 | 25 | 675 | 595 | 80 |
| 1954-55 | 230 | 90 | 40 | 200 | 170 | 30 | 760 | 675 | 85 |
| 1955-56 | 250 | 90 | 40 | 210 | 180 | 50 | 820 | 700 | 120 |
| 1956-57 | 290 | 100 | 60 | 230 | 195 | 90 | 965 | 865 | 100 |
| 1957-58 | 300 | 100 | 45 | 250 | 195 | 130 | 1020 | 970 | 50 |
| 1958-59 | 330 | 100 | 45 | 270 | 200 | 150 | 1095 | 970 | 125 |
| 1959-60 | 360 | 110 | 50 | 290 | 210 | 180 | 1200 | 1285 | *Nil* |

TABLE 18

*Present and planned cement capacities, 1955—60*

| Operating | (June 30, 1955) | Actual Capacity (Thousand tons) |
|---|---|---|
| Chattack | East Pakistan | 70 |
| Wah | West Pakistan | 215 |
| Rohri | Do. | 190 |
| Dandot | Do. | 75 |
| Dalmia | Do. | 120 |
|  | Total capacity (June 30, 1955) | 670 |
| *Under Construction* |  |  |
| Daudkhel | West Pakistan | 90 |
| Hyderabad, phase I | Do. | 105 |
|  | Total capacity by mid-1956 | 865 |
| Hyderabad, phase II | West Pakistan | 105 |
|  | Total capacity by mid-1957 | 970 |
| *Recommended* |  |  |
| Additional plant (or expansion) 1 |  | 135 |
| Additional plant (or expansion) 2 |  | 180 |
|  | Total capacity by mid-1959 | 1,285 |

144. The total expenditure for these additional plants, plus the expenditure on the Daudkhel and Hyderabad plants outstanding at June 1955 totals Rs. 79·4 million. An additional expenditure of Rs. 12·5 million is expected for the reconstruction of existing plants, especially Wah and Dalmia, bringing the total investment to Rs. 91·9 million. Of this equivalent of Rs. 53·5 million will be in foreign currencies. Although we have provided for public expenditure through the PIDC of 54·4 million rupees for cement development during the Plan period, we do not intend to indicate that the PIDC should dominate the cement development programme. Private industrialists are urged to undertake cement plant construction on their own, and the government should see that they are provided with facilities for doing so to the same extent as is the PIDC.

**Cement products**

145. There are 13 units in the country now producing reinforced cement concrete pipes and cement tiles. The annual capacity of these plants is about 2·1 million running feet of R.C.C. pipe and 0·20 million square yards of cement tiles, the total being valued at about 5·0 million rupees. An asbestos-cement sheet factory to cost a total of 2·0 million rupees is under construction in Karachi. This plant will have a daily capacity of 60 tons of sheets. Canadian machinery has been purchased, and delivery is awaited. At present, asbestos will have to be imported. However, high-quality deposits of unknown extent have recently been found in the former N.-W.F.P. Another Karachi company is producing a new form of construction panel by filling reed and bamboo-lattice work with cement.

The effectiveness of this board as a durable building material remains to be demonstrated. All things considered, as locally-produced cement becomes more readily available, its use for cement products such as those described above should be encouraged. The Plan provides 4·9 million rupees for increasing the capacity of this industry, including expenditures yet to be made on the asbestos-cement sheet factory mentioned above.

**Ceramics and refractories**

146. Ceramics here include pottery, sanitary goods, glazed tiles and insulators ; refractories include only bricks made from fire clay generally called " fire bricks". There are 3 fairly large units (Karachi, Sialkot and Gujrat) making pottery and sanitary goods, having a total capacity of 2,000 tons of goods per annum. There are also 3 units (Karachi, Lahore and Rawalpindi) with a capacity to manufacture 22,000 tons of fire bricks per year. A sum of Rs. 6·8 million has been invested in the existing units. Existing capacity to manufacture pottery and ordinary fire bricks is considered adequate for the requirements of the country. We think, however, that glazed tiles and porcelain insulators should be produced in the country, as suitable raw material in the form of china clay, fire clay, and rice husks are available. We also consider it desirable to increase the capacity for sanitary goods. The programme provides a sum of Rs. 4·3 million in the private sector ; Rs. 2·7 million for increasing the capacity of the above ceramics by another 1,000 tons a year, and Rs. 1·6 million for modernising the existing industry. The increased value of goods to be produced is estimated at Rs. 1·2 million.

## ENGINEERING INDUSTRIES

**Iron and steel**

147. There is no capacity in the country at present for the production of iron or steel. There are, however, deposits of iron ore and of coal that would make such production feasible. We looked into the possibility of establishing an iron and steel industry, and came to the conclusion that a beginning should be made on such a project during the Plan period in order to provide technical experience and to lay the basis for later expansion. To this end, we propose that a plant should be built for the production of pig iron. The plant would consist of three units : a carbonisation unit for coal, a Renn kiln for the direct reduction of iron ore, and an iron-melting cupola. Production would be about 15,000 tons of pig iron annually, which compares with an average import of about 20,000 tons.

148. The total investment in such a plant would be about 50 million rupees. The foreign exchange component of the investment would be about 32·5 million rupees. Allowances for these sums have been included in the Plan.

A later proposal for the creation of an iron and steel works came before us on the eve of publication of this report and is currently under examination. If the decision were taken to carry out this project during the period of the Plan, the allowance made above would have to be increased from 50 million rupees to 170 million rupees.

149. Until the country has its own steel making plant we suggest that billets and other steel forms not locally available should be stocked at sites dispersed throughout the country as an essential means to assure implementation of the development programme. Long-term purchase agreements, would make the freezing of capital in large unused stocks unnecessary. A revolving stock of billets at a relatively low level could be established with the supplier committed to keep this stock six months to a year ahead of requirements and to bring it up to maximum strength at short notice.

### Steel melting

150. There are presently three 4½—6 tons electric furnaces located in Lahore, two at the Batala Engineering Company and the other at the Steel and General Mills Ltd. They have a total effective capacity of about 19,000 tons annually if operated almost continuously. Actual production, however, has averaged about half this amount. They are operated on an all-scrap charge to produce mostly low-carbon steel which is rolled into bars. No new steel melting capacity is recommended for the Plan period. It does little good to add new electric furnaces when there are insufficient billets and scrap available to operate the present ones. The general problem of providing sufficient imported industrial raw materials is discussed elsewhere, and increasing the supply of steel is recommended. The supply of scrap is another matter and depends primarily upon organised gathering, sorting and baling. The amount of scrap available in Pakistan is not certain, but it is clear that there is no systematic method of collecting what is available. This should be the function of private businessmen who deal in this commodity exclusively, purchasing scrap from many sources, preparing it, and selling it to industry. A system of scrap preparation and classification should be set up, so that the user will know precisely what he is getting.

### Steel re-rolling

151. There are 34 re-rolling mills, located mostly in Karachi and the Lahore District, having a total effective capacity of about 125,000 tons annually of bars and bar mill shapes rolled from imported billets and from locally-gathered scrap. The total productive capital invested, excluding electric furnaces, is estimated at Rs. 17·9 million. The annual requirement of reinforcing bars, merchant bars, and simple shapes is not expected to exceed the effective capacity of 125,000 tons during the Plan period. To replace imports of sheets and hoops, or strapping, however, two new mills are recommended—a 13,500 tons sheet mill to cost an estimated Rs. 7·0 million, and a 4,000 tons strapping mill to cost an estimated Rs. 2·5 million. Also, to enable East Pakistan to produce most of its requirements for bars and rods, a general re-rolling mill is provided specifically for that Province ; a 13,000 tons mill is recommended at a cost of about 4·0 million rupees. In addition, at least Rs. 4·3 million should be spent in modernising the existing plant. This brings the total investment programme to Rs. 17·8 million during the years 1955—60. The annual increase in value of product will be Rs. 17·2 million, of which Rs. 4·9 million represents foreign exchange savings.

### Shipyards

152. Classified under Shipyards are 12 ship-building yards, dry docks and repair yards in East and West Pakistan. The total capital now invested is estimated to be about Rs. 35·3 million. It is proposed to add capacity valued at about Rs. 76·1 million during the Plan period. This total is composed of the following schemes :

(*a*) Completion of the Khulna and Narayanganj shipyard projects Rs. 20·4 million,

(*b*) Completion of Phase I and drydock of Karachi shipyard, Rs. 23·7 million, and

(*c*) Phase II of the Karachi shipyard, Rs. 32·0 million.

An additional 6·1 million rupees is provided for modernising existing private yards bringing the total investment during the Plan period to 82·2 million rupees. The investment of Rs. 76·1 in new capacity will be made entirely by the PIDC.

## Medium and light engineering

153. Into the classification of medium and light engineering fall about 352 engineering shops producing ferrous metal products ranging from lathes to wire nails. Their total productive capital is estimated at Rs. 104 million and they have the effective capacity to produce about Rs. 130 million worth of goods. Two motor vehicle assembly plants have been authorized to set up in the country in addition to the one already in operation. The three plants will have a combined capacity of about 2,000 cars per year. A general purpose engineering shop is required in the vicinity of Dacca. Additional special purpose shops may be required to fabricate new products.

154. Bicycle manufacturing is an important segment of the engineering industry. There are two plants in Lahore with a total capacity of 15,000 bicycles per year, and one is under installation in Karachi which will have a capacity of 100,000 per year. About 20 per cent. of the machinery for this plant is in Karachi and the remainder will be shipped as soon as the Government releases the foreign exchange to pay for it. The total annual capacity of 115,000 is thought to be sufficient for the Plan period. At present, wheels, chains and ball bearings are imported, while the rest of the components are manufactured in the country.

155. The capacity to manufacture sewing machines is estimated at 15,000 per year, although actual production is little more than half of this amount. Additional capacity will undoubtedly be required within the Plan period. A foreign firm has been given permission to set up an assembly plant with a capacity of 15,000 machines per year.

156. The estimated total cost of these new investments is 22·8 million rupees. Other than these special needs, we think there is sufficient basic capacity in engineering shops to meet the country's requirements during the Plan period. Considerable funds will have to be spent, however, to modernise and improve the existing plants. The sum of Rs. 19·7 million, about 20 per cent. of the fixed capital, is suggested for this purpose, bringing the total investment in the Plan period to 42·5 million rupees, of which the foreign exchange component will be about 24 million.

157. The primary problem faced by the engineering industry is not one of equipment or capacity, but the scarcity of raw materials, manufactured metal parts such as fasteners, dials, etc., and maintenance and replacement parts for machinery. Technical and managerial assistance is the second important need of the engineering industry. This will gradually be made available through such agencies as polytechnic institutes, teams of foreign experts and the National Productivity Centre, previously described.

## Non-ferrous products

158. Included in non-ferrous metal products are all items of copper, brass, tin, and aluminium, such as kitchen ware, tiffen carriers, household hardware, and locks. There are at present 109 factories producing these items with a total capital investment of about Rs. 14 million. Their annual capacity is in the neighbourhood of Rs. 40 million worth of production, although actual production is considerably beneath this figure. The only new capacity recommended for this industry in the Plan period is an aluminium sheet mill for East Pakistan to roll sheets from aluminium ingots and scrap. This mill would cost about 1·5 million rupees and would produce 2000 tons of aluminium sheeting annually. We think that, if the present capacity is allowed to produce fully, there will be little need for increasing basic capacity in this field, other than the sheet mill mentioned above, during the Plan period. The sum of Rs. 6·1 million is recommended, however, for modernising many of the units which are using obsolete and wasteful equipment. This brings the total recommended investment to 7·6 million rupees.

**Enamelware**

159. There are at present 8 enamelware factories with a total investment of about Rs. 3 million and a capacity of 1400 tons of products. This capacity is considered to be more than adequate for the needs of the Plan period. The use of enamelware is decreasing in most countries since it is inferior in many ways to aluminium. It is difficult to make properly, costs more, chips easily, and weighs more than other types of kitchenware.

## ELECTRICAL INDUSTRIES

**Motors, switch gear, and fans**

160. At present there are 19 units producing electric fans, with a combined capacity of about 75,000 fans per year, which is considered to be ample for the country's needs. Some fractional horse-power motors are being made but they are insignificant compared to the country's needs. Considerable development is expected during the Plan period. Three plants have been sanctioned and one is now under construction in Lahore. Production of electric motors may total as much as 80,000 H.P. per year by 1960. Switch-boards are being assembled only on a limited scale now. It is expected tha by the end of the Plan period switch-gear of all types up to 11,000 volts will be produced locally, and that transformer production will total to 100,000 kva per year. These capacity increases should make the country practically self-sufficient in standard size transformers, switch-gear, and electric motors. The investment required for new capacity will total about 10·5 million rupees. Another 1·5 million rupees is provided for modernising several of the existing fan manufacturing plants.

**Cables, batteries, and electrical appliances**

161. There were at the beginning of the Plan period 6 factories operating in this field, with a total capacity of about 17 million rupees, worth of product. A large-scale manufacturing company has recently started operations in Karachi. The production target for its present phase of operations is 9 million yards of rubber-insulated cables from the core stage onwards, and 1400 tons of copper conductor. Since it started production after the beginning of the Plan period, this capacity is included with the increase shown in cloumn (5) of Table 1. The Plan provides for further expanding the facilities of this factory to allow for the complete manufacture of rubber-insulated cables, thus increasing the savings of foreign exchange. Eventually it is expected that this company will also produce paper-insulated power cables, dry-core telephone cables and overhead line conductors, but this expansion is not expected before 1960.

162. Dry cells are being produced in three factories in West Pakistan, but production is not adequate to meet requirements, which are estimated at 10 million cells a year. The Plan provides 1·2 million rupees for the establishment of a dry-cell factory in East Pakistan and the expansion of one factory in West Pakistan. Wet batteries, or storage batteries, are being produced by two factories in Karachi, with a total estimated capacity of about 60,000 units, although actual production falls far short of this. The country's requirements of wet batteries is estimated at about 100,000 per year. Two other companies have been sanctioned to establish factories which will bring the total capacity to about 105,000 per year by 1960. The Plan provides 1·3 million rupees to cover the investment in these factories, but no further sanctions are recommended for the Plan period.

163. Electric lamps, or bulbs, are being manufactured in a Karachi plant which has more than ample capacity to meet the needs of the country for the Plan period. No expansion is recommended before 1960.

164. Household appliances and fittings are not now being produced on an organised basis. A proposal has been prepared for the establishment of two appliance factories by a single company, one in each Wing. These plants would produce water-coolers, air-conditioners, refrigerators, pumps, and other electrical goods. Since it seems desirable to start the production of such items within the Plan period, 9·0 million rupees is provided for these two factories.

165. The total new investment in this diversified expansion programme for the cables, batteries and electrical appliances industry, including the recently established cable factory, totals 17·0 million rupees. Another 0·4 million rupees is provided for modernising the existing dry cell factories.

**Radios and rediffusion**

166. There are now seven companies, assembling radios, and three others are reported to have been given sanction, but have not yet started. Capacity is in the neighbourhood of 30,000 sets, annually although production is only half this amount, because of a shortage of imported parts. This production is barely enough to replace the sets which go out of operation each year through obsolescence and breakdown. It is not nearly sufficient to meet the needs of the country, which are estimated at between 75,000 and 100,000 sets annually.

167. The production of cheap radio sets should be increased, but not the number of radio manufacturers. There are already too many assemblers sharing a limited amount of foreign exchange, with the result that unit overhead charges are very high and the price of locally assembled sets is correspondingly so. Radio manufacturers should be limited to the present number and, if possible, marginal producers should be encouraged to combine or withdraw from the field. We recommend increasing the import of radio kits from 15,000 to 75,000 during the Plan period, to allow manufacturers to operate at an economic level of production, and to satisfy the country's needs as far as possible by locally—assembled sets. Local manufacture and fabrication of selected radio parts should be encourage to the maximum extent possible, consistent with quality requirements and the economics of mass production. Cabinets, transformers, variable condensers, chokes, and coils, and the simpler metal components and plastic items can be produced almost immediately.

168. No government activity in the field of radio parts manufacture or assembly is recommended during the Plan period. The private sector is well able to meet demand, if supplied with adequate imported materials, and encouraged in its attempts to establish fabricating facilities.

**Development of rediffusion, or relay services**

169. The use of rediffusion, or wire relay services, for distribution of radio programmes offers a possibility for augmenting the supply of radio service. The system is one of a wired broadcast distribution. Wires are run from the broadcasting studio, or receiving and relay stations, to loud-speakers in individual homes. The speakers are not purchased, but rented as part of the service. Private interests have approached Government with proposals for establishing such services in Karachi, Lahore and Dacca. These companies are prepared to supplement the broadcasts of Radio Pakistan, up to a total service of 15 hours a day, by broadcasting their own programmes on the same channels at times when Radio Pakistan is not operating. These programmes would be approved in advance by an agency of the Government. The major cost of installing this service is for the cables and poles required to carry the relay to individual speakers. Therefore it is most economical in large cities.

170. We think that a start should be made in this activity during the Plan period. A study must first be made of the Government's relationship with the rediffusion companies, especially in matters of commercial advertising, rental rates, and programme approval.

With the hope that this service will be developed, we provide in the Plan for the manufacturing of 30,000 relay speakers per year by 1960 ; they can easily be assembled in existing radio factories.

171. In summary, the Plan provides 4·6 million rupees for expansion of existing radio factories and facilities for relay speaker production. Another 0·3 million rupees i provided for modernisation, bringing the total investment in the radio and rediffusio industry to 4·9 million rupees during the Plan period.

## SUI GAS

### Sui gas transmission

172. The Sui-Karachi pipeline has been completed at a total cost of about Rs. 8 million, and is now supplying gas to major industrial users. The reserves of gas at Sui after deducting the quantity reserved for the Karachi pipeline, are estimated as sufficien to supply fuel equivalent to over one million tons per year of imported coal for over 10 years. The fuel demand for primary industries and power generation in the Multan, Lyallpur, Lahore areas is very high and will continue to grow. To satisfy the former Punjab' need for fuel, the installation of a 16 inch pipeline approximately 400 miles long is recommended to transmit Sui gas to Multan, Lyallpur, Lahore, and intermediate points as needed If this line is commenced soon it can reach Lahore by the middle of 1958.

173. The project will cost about Rs. 160 million in its entirety, 155 million for fixe investment, and 5 million for working capital. Table 19 shows the annual cost of gas a Lahore, compared with the cost of equivalent coal and oil, and the corresponding foreig exchange savings. The table indicates that at some point of throughput between 20 an 30 million cubic feet per day the delivered cost of gas at Lahore becomes cheaper than tha of alternate fuels. The foreign exchange saving is found by taking the foreign exchange cost of equivalent coal and oil, and deducting the foreign exchange cost of transmission For a throughput of 70 million cubic feet per day, expected before 1960, the net foreig exchange saving is 35 million rupees per year. In terms of foreign exchange saving an contribution to national income, gas transmission is one of the most promising investments available.

TABLE 19

*Comparative fuel costs at Lahore City, and foreign exchange savings, Sui-Lahore pipeline.*

| | | Throughput in Million cu. ft. per day | | | | | |
|---|---|---|---|---|---|---|---|
| | | 20 | 30 | 40 | 50 | 60 | 70 |
| Transport cost (1) (per 1000 cu. ft.) | Rs. | 3/4/0 | 2/2/7 | 1/9/11 | 1/4/10 | 1/1/3 | 0/14/11 |
| Field price (per 1000 cu. ft.) ... | Rs. | 0/8/0 | 0/8/0 | 0/8/0 | 0/8/0 | 0/8/0 | 0/8/0 |
| Delivered cost (per 1000 cu. ft.) | Rs. | 3/12/0 | 2/10/7 | 2/1/11 | 1/12/10 | 1/9/3 | 1/6/11 |
| Annual gas cost* (2) ... | ... | 27·4 | 29·1 | 31·0 | 32·9 | 34.6 | 36·7 |
| Annual Cost* of equivalent imported coal and oil (3). | | 21·4 | 32·1 | 42·8 | 53·5 | 64.2 | 74·9 |
| Annual gross foreign exchange* savings (4). | | 11·4 | 17·0 | 22·7 | 28·3 | 34·0 | 39·6 |
| Annual foreign exchange cost * (5) | ... | 4·6 | 4·6 | 4·6 | 4·6 | 4·6 | 4·6 |
| Annual net foreign exchange savings* | ... | 6·8 | 12·4 | 18·1 | 23·7 | 29·4 | 35·0 |

(1) Assuming fixed capital of Rs. 155 million and annual charges of Rs. 23·7 million.

(2) Delivered price times throughput per day times 365.

(3) Assuming the same relative proportion of the fuels for which gas is substituted, *i.e.*, coal 78%, oi 22%, and that gas replaces only imported oil and coal, since domestic production will continue unaffected.

(4) Based on coal foreign exchange of Rs. 36/5 per ton and oil Rs. 90 per ton.

(5) Consists of depreciation at 3% p. a. on foreign exchange component of the investment and an operating foreign exchange cost of replacements and materials calculated at 1% p. a. fixed capital.

* Value in millions of rupees.

174. It is hoped that private investors will share the cost of this project with the PIDC and others in about the same proportion as for the Sui-Karachi line. On this basis, the Government's share of the investment will be about Rs. 46·1 million. The foreign exchange component of the total investment will approximate Rs. 104 million.

### Uses of Sui gas

175. It is most important that the policies followed with respect to the use of Sui gas be such as to gain the most from this resource for the benefit of the country. Hitherto, the Government has had no detailed policy on the rate of tapping the gas, the place and purposes of use, and the price at which it shall be sold. In addition to its obvious uses for power generation and as an industrial fuel, we recommend its use in the manufacture of fertiliser. There are many other chemical uses to which natural gas might well be put, such as the production of acetylene, synthetic ammonia, liquid fuels, carbon dioxide, synthetic rubber, carbon black, alcohol, formaldehyde, and plastics. It may also be desirable to convert the hydrogen sulphide content of the gas to elemental sulphur. These are matters of an involved technical nature on which we do not yet feel competent to make proposals. What is required is a thorough technical-economic study by a team of highly qualified specialists to advise the Government on policy for exploiting the chemical potential of Sui gas. We recommend that this study be commenced immediately.

### Sui gas distribution

176. Two gas distribution companies are recommended, both to be formed during the Plan period, one to distribute gas in the Federal Area of Karachi and the other in Lahore City.

177. *Karachi gas distribution company.*—The main gas transmission line has already reached the West Wharf, and is providing gas to major industrial users in the Landhi and Sind Industrial Estates. The Karachi Gas Distribution Company has been started for the purpose of extending the supply to minor industrial consumers, and also to domestic and commercial consumers ; if the delivered cost of gas can be competitive with other fuels, the demand from these users would appear to justify immediate investment in a distribution company.

The estimated capital expenditure on distribution, plus house meters, internal piping, and working capital, comes to an estimated Rs. 44 million for the Plan period. The organisation of this company must necessarily be a joint government and private enterprise, but it is hoped that the Government, through the PIDC, will not find it necessary to invest more than one-third of the funds.

178. *Lahore gas distribution company.*—By the time the Sui-Lahore gas pipeline is completed in mid-1958, a distribution company for Lahore City should already have been formed. During the Plan period this company will perhaps be able to extend the gas supply to minor industrial users, but not to commercial or domestic consumers. The capital expenditure of distribution to minor industrial users plus working capital will come to about 10 million rupees. As in the case of Karachi, the PIDC is expected to participate in this company, and to provide about one-third of the capital.

## OTHER INDUSTRIES

### Printing and publishing

179. Before partition, the printing and publishing industry of the Punjab was well known for its quality printing, especially of Urdu literature. Most of those presses were located in Lahore. The total number of presses in Pakistan was estimated at 97 at partition, consisting of Urdu, English, Bengali and Sindhi languages, the number of Urdu presses

being equal to all other language presses combined. At present there are 133 printing, publishing and bookbinding units capable of producing publications valued at Rs. 27 million in which a capital of Rs. 38·9 million is invested.

180. The industry has suffered recently from a shortage of newsprint, ink and other supplies, and replacement parts for presses and other equipment. The Plan provides for a substantial increase in the flow of imported raw material and spare parts ; it is hoped that this will largely alleviate the pressing needs of the printing industry. By the end of the Plan period, the Khulna newsprint plant should be completed, which will assure an adequate supply of newsprint for the foreseeable future. The programme provides an investment of Rs. 18·3 million in the private sector—Rs. 7·3 million for increasing the capacity and Rs. 11·0 million in modernisation.

### Film industry

181. At present there are 5 private film studios in the country, which produce on the average about 15 films a year. There is also a studio operated by the Department of Information and Broadcasting producing documentary films for information purposes. These studios are poorly equipped and, although they do their best with the facilities available, their standards of quality with few exceptions, are not very high. Approximately 125—150 films are imported each year on a purchase or rental basis, costing considerable foreign exchange. We consider the film industry of great importance, not only in its cultural impact on the country, but also as a foreign exchange saver and potential foreign exchange earner. The programme provides 7·6 million rupees for increasing the capacity for film production by 15 films a year, bringing the total regular production to 30 films a year by the end of the Plan period. This investment includes a new studio in Karachi, now under construction. Another 6·0 million rupees is provided for modernising existing studios and providing equipment for film processing. The value of the additional 15 films is estimated at 6·8 million rupees. If their quality is good enough, they may be exportable to neighbouring countries, and thus provide a source of foreign exchange.

### Industrial trading estates

182. Experience with the Sind and Landhi industrial trading estates at Karachi has demonstrated their effectiveness as an aid to industrial development. The purpose is to provide enterpreneurs with reasonably-priced land already furnished with roads, bus service, water, power, telephones, sewerage, and rail-sidings. This saves time and energy, and reduces the investment which would be required if such facilities were provided for each factory separately. The advantages of industrial estates apply also to cottage and small-scale industries. Provision for small-industry estates are included in chapter 22. Such estates can also be the nucleus of new and better worker's communities if they are properly designed. In the planning of estates provision should be made for substantial and suitable employee housing and the requisite community facilities. These should not be allowed to grow up at random to develop almost immediately into new industrial slums.

183. We are of the view that in the future new factories should be encouraged to set up whenever possible in industrial estates. Additional estates must therefore be established during the Plan period. The Plan provides 3·4 million rupees of public funds to assist in financing four estates for which schemes have been received. These are at Multan, Hyderabad, Sukkur, and Khairpur. No schemes were received from East Pakistan. The needs as well as opportunities for establishing industrial estates will undoubtedly be greater than is provided in the Plan. Additional schemes from both Provinces will be welcome. If well-conceived schemes are received, every effort should be made to provide the required resources.

# CHAPTER 22

# SMALL-SCALE AND COTTAGE INDUSTRY

## Introductory

1. The preceding chapter presented the large-scale industry investment programme. We now discuss the development programme for small-scale industries.

2. For the purpose of this chapter, the term " small-scale industry " includes any manufacturing enterprise which either uses no power, or employs less than 20 persons, and is thus not subject to registration under section 2 (j) of the Factory Act. This definition includes " village industry ", whether producing for local consumption or for wider markets, and " cottage industry ", which is carried on in the home, usually with the help of members of the family. No claim is made for the superiority of the definition ; as a matter of convenience, however, it seems desirable to treat all types of small manufacturing enterprises under one comprehensive heading. Their common problems, rather than their differences, are to be discussed.

3. Small industry has specific contributions to make to economic development. In the first place, it can contribute to the output of needed goods without requiring the organisation of large new enterprises or the use of much foreign exchange to finance the ipmort of new equipment. Secondly, it can provide opportunities for employment beyond the narrow boundaries of urban centres. Finally, as history shows, it can perform an important function in promoting growth, providing a training ground for mangement and labour and spreading industrial knowledge over wide areas.

4. Small industries are not to be thought of as archaic institutions requiring coddling and protection lest they disappear. There is a permanent place for efficient and progressive small-scale industries in modern industrial societies, as is shown by the existence of thousands upon thousands of small units alongside the giant firms found in advanced countries such as the United Kingdom, Germany, and the United States. The opportunity for such industries to survive and grow is even greater in Pakistan where large-scale units are the exception rather than the rule.

## How Small Industry is Handicapped

5. Small industry suffers serious handicaps. First, its methods of production are usually antiquated. Industrial processes are derived from ancient crafts, and are performed in time-honoured but inefficient ways. Many small units, especially in cottage industry, operate without power and with little but the most primitive tools. The knowledge and skills required for modernisation are lacking. Even where new enterprises are established, ignorance of better alternatives induces imitation of out-moded techniques.

6. Second, small industry has difficulty in obtaining capital, both for working purposes and for the purchase of improved equipment. Banks are rarely inclined to make loans directly to small businesses. Other agencies to provide such credit have been lacking. In the absence of credit, modernisation cannot take place.

7. Third small industry is not assured of access, on reasonable terms, to supplies of raw materials. It buys from middlemen, in small quantities, at prices that are far higher than those paid by largeconcerns. Small producers may also depend on middlemen for credit, falling deeply into debt and being tied to particular suppliers, whatever the prices

they may charge. Under present circumstances, moreover, the shortage of foreign exchange, combined with a system of import licensing that favours trade rather than production, makes it difficult for small industry to obtain imported materials. Where such materials are available at all, their scarcity is reflected in the prices and the profits of the middlemen.

8. Finally, small industry is handicapped in marketing its output. Having little working capital, the small producer depends on a quick turnover, selling his goods as soon as they are finished at any price he can get. Depending on the middleman for credit, he may be forced to sell to the middleman at whatever price the latter offers. Getting low prices for his output, while paying high prices for his material and high interest for his credit, he may find his margin squeezed until it yields him mere subsistence—if even that.

9. Small industry lacks knowledge of the market. It can make no studies of demand. It cannot design its products to suit changing tastes or to improve their sales appeal. It lacks the organisations that are needed effectively to handle the marketing and merchandising of its goods.

## How Government can help Small-industry

10. The most promising method of solving the problems of small industry is the formation of trade associations to provide for their members services of a kind that each member cannot provide for himself. Such associations can impart to small industry many of the benefits of large-scale organisation. In Japan, for instance, at the end of 1952, over 17,000 common-facility associations were operating joint establishments for purchasing supplies, carrying on certain phases of production such as preparing and finishing, and marketing finished products. We discussed the past failures of the co-operative movement in the sub-continent, and the reasons for these failures, at some length in connection with the problem of providing rural credit. Whatever the weaknesses and shortcomings of co-operation, we said, it must be the national resolve to make it succeed. For if co-operation is lost, the most hopeful means of rural reconstruction and development will be lost. These words apply with equal force to the use of co-operation as a means of solving the problems of small industry. Co-operatives, once established, will be under private ownership and management. But if co-operative institutions are to be built, the Government must assume a role of positive leadership. It cannot merely permit the formation of associations ; it must promote, sponsor, and assist them.

11. Another instrument available to the Government in aiding the development of small industry is the Small Industries Corporation. Provision was made for the establishment of this body in the Small Industries Corporation Ordinance of 1955 re-enacted as the Small Industries Corporation Act of 1956. The Corporation is empowered :

(*a*) To make loans—up to a limit of Rs. 1,00,000 each—to commercial or co-operative banks in order to enable them to make loans, in turn, for the development of cottage and small-scale industries ;

(*b*) To make direct loans—up to a limit of Rs. 10,000 each—to such industries ;

(*c*) To make such loans in the form of factory buildings, houses, machinery, and equipment, on a hire-purchase basis ;

(*d*) To maintain depots to supply raw materials to, and buy finished products from such cottage and small-scale industries ;

(*e*) To arrange for the marketing of articles manufactured by such industries ;

(*f*) To sponsor subsidiary corporations or public companies to carry out such functions, finance them and provide for their management ;

(*g*) To prepare other schemes for the development of cottage and small-scale industries, including schemes of research and mechanisation, and submit them to the Central Government ; and

(*h*) In general, to " take such measures as it thinks fit to render assistance in the development of cottage and small-scale industries ".

The Corporation's mandate is thus broad enough to enable it to take whatever action may be required in aiding such development.

12. The Corporation is still in the early stages of organisation. It is setting up two subsidiary corporations, one in each Wing. It has opened a model handloom unit in Karachi, to produce in accordance with its specifications and designs. It has imported and stored some raw materials, and is locating depots for their distribution. The further elaboration of its programme lies ahead.

13. If small industry is to survive and prosper in the face of increasing competition from large industry, it stands in need of technical guidance. A first step in the provision of such guidance should be the development of improved processes of production and the design and construction of the types of equipment that such processes will require. This should be the task of research and development institutes for small industry. Such institutes might well be set up in connection with existing trade schools where they could also offer training in the new techniques and the use of the new equipment. Shops known as research and development centres are now being built in Lahore and in Dacca under the sponsorship of the Ministry of Industries. As at present planned, it will be the function of these centres to design and produce small tools and simple equipment and to train toolmakers and shopmen for the small engineering industries. This function is important. But the task that we envisage for the proposed research and development institutes is a broader one.

14. Knowledge concerning new methods of production must be imparted to the small producer. In places accessible to large numbers of craftsmen, model units should be established for demonstration and training. In outlying districts, a similar function can be performed by industrial extension workers. This service would best be integrated with the Village AID organisation, with industrial specialists attached to the development areas, and village workers serving as the point of contact for the village artisan.

15. Small industry needs technical guidance not only in improving its methods of production, but also in improving its products, its marketing practices, its financial operations, and its business management. Such guidance has been afforded, in other countries, by governments. The Japanese Government, for instance, offers an advisory service through its Smaller Enterprise Agency. At the request of a single firm or an association of small firms, the agency sends in a team of experts to analyse their operations. On the basis of this analysis, it then offers advice as to how these operations can be improved. A comparable service might be rendered to small industry in Pakistan.

16. In such a programme of technical guidance, the Ministry of Industries, the Village AID organisation, and the Small Industries Corporation each must play a role. The Ministry of Industries can establish research and development institutes, model units, and demonstration centres. The Village AID organisation can provide industrial extension workers and train village workers to serve as points of contact between government agencies and village industries. The Small Industries Corporation can co-operate in these activities, and can undertake to provide small industry with advisory services.

17. Small industry needs credit, both for new equipment and for working capital. Such credit can be made available, in greater quantities, through the action of the Government. This is best accomplished, where possible, by lending indirectly, making loans

in larger amounts to agencies that take responsibility for lending smaller sums to small producers. By lending to banks, and by insuring them, in part, against loss, it may be possible to persuade them to make more small loans. By promoting the organisation of co-operatives, encouraging them to undertake the function of providing credit, and employing them as a channel for making loans, it may be possible to go even further towards meeting the capital needs of small industry. Indirect lending for these purposes is within the powers of the S. I. C.

18. The Corporation is also authorised to lend directly to small producers. Such lending should be undertaken only as a last resort. It would be subject to possible abuse. It would involve a heavy burden of administrative detail, diverting the Corporation's energies from the other tasks it was established to perform.

19. Access to credit must be assured not only to small industry in urban centres, but also to village industry. Where credit or multi-purpose co-operatives exist, a special department for industrial credit can be created, and loan funds borrowed from the proposed agricultural banking system or from the S. I. C. The Village AID organisation, through its village workers, can serve as a point of contact for the village artisan, informing him concerning the availability of credit, helping him to apply for loans, and advising him about the payments he must make.

20. In general, the ownership of productive facilities in small-industry must be in private hands and the Government's contribution to capital must take the form of loans. There are cases, however, in which developments that would not otherwise occur could be effected if the Government initially were to provide certain types of facilities. Such properties could be converted, subsequently, to private or co-operative ownership.

21. One such possibility is the creation of small industry estates. As with large industry, the Government could provide land, roads, water, power, and similar facilities. It could also construct workshops, warehouses, and other buildings, and even instal machinery. The common facilities could be retained in public ownership or sold to co-operative associations. The separate facilities could be sold to individual owners on a hire-purchase basis. Given such a start, it should be possible to establish centres of small industries similar to the concentrations at Sialkot where skilled workers have been employed, for the past quarter-century, in turning out speciality products such as sports goods, musical instruments, cutlery, surgical instruments, and toys. If this could be done at Sialkot, it can be done elsewhere.

22. A second possibility is the establishment of specialised common facility centres for certain industries. These centres would provide to many small producers of similar products certain processing services requiring an investment so heavy that they cannot afford to provide them for themselves. In the pottery industry, for instance, the production of high-quality crockery suffers from the lack of refinement in productive processes, especially in the preparation of the clay body before firing. The individual potter is unable, with his simple hand-operated equipment, to grind the clay to the proper uniformity and fineness, eliminate and keep out all impurities, and mix and age the clay thoroughly enough to produce flawless goods. This could best be done in centralised facilities with the necessary large-scale equipment such as disintegrators, ball mills, filter presses, hydraulic pumps, and pug mills. Well-prepared bodies are supplied to potters in other countries through such facilities, and this procedure has proved successful in inducing output of high quality. In the textile industry, similarly, facilities might well be provided to prepare warps for weaving and to dye, calender, and print woven goods. Such facilities could be built by co-operatives with the aid of government loans. Alternatively, they could be established by the Government and their services sold to small industry. Eventually, however, they should be converted to private or co-operative ownership.

23. A third possibility of aiding the development of small industry by providing publicly-owned facilities is the provision of small power units. In places where power is lacking or supplies of power inadequate, small industry is handicapped in the performance of processes requiring power. To serve such places, Government might provide mobile or stationary power units, ranging in size from 50 to 500 horsepower. The cost of the units would be covered, in part at least, by charges for the use of power. The mobile units could be moved to new locations as other sources of power become available. The units remaining should pass, eventually, into local ownership.

24. The Small Industries Corporation is empowered, as was noted above, to make loans in the form of factory buildings, houses, machinery, and equipment on a hire-purchase basis. This power can be employed most effectively if used, not to build or equip individual small establishments, but to initiate facilities of the special types described above.

25. Small industry needs improved organisation for obtaining raw materials. This function is best to be performed by co-operative associations. By combining their purchases through such agencies, small producers can buy in larger quantities, by-pass the middlemen, and obtain supplies at lower prices.

26. The only alternative to such self-help is for the Government to purchase materials and distribute them through supply depots. The S.I.C. has been authorised to set up such agencies and has taken steps to do so. This, undoubtedly, is the quickest way to meet the immediate raw material needs of small industry. It should be the policy of the Government, however, to convert these facilities, as soon as possible, to co-operative ownership.

27. As long as the scarcity of imported materials persists, it should be the responsibility of the Government to ensure that small industry is enabled to obtain, at reasonable prices, its fair share of the limited supplies. In the absence of strong co-operatives, this should be an important function of the Small Industries Corporation.

28. Improvements in marketing the products of small industry can also be effected by co-operative associations. These bodies can undertake, on behalf of their members, to analyse markets, study consumer preferences, advise on product design, and promote sales. They can undertake to handle the distribution of an industry's output, assembling, inspecting, selling, packing, and shipping its products, collecting payments, and transmitting receipts. The credit required to finance such activities can be extended, presumably, by the S.I.C.

29. The alternative to co-operative marketing is assumption of the marketing function by an agency of the Government. Authority to take such action has been granted to the S.I.C. If the Corporation were to do so, however, there is danger that it would be pressed to accumulate large stocks, to purchase inferior goods, and to pay excessive prices. If it sought to recover its costs, its stocks would be unsaleable and its funds exhausted. If it sold its stocks for whatever they would bring, it would do so at a loss. Marketing, in any case, is a field in which the initiative of private enterprise is superior to the usual procedures of government. The S.I.C. will be more successful in promoting the development of small industry if it encourages co-operative marketing and does not attempt to go into business for itself.

30. At every point in the programme for small industry, the emphasis should be on voluntary association for self-help. The Government should provide educational services. It should promote the formation of co-operative organisations. It should render material assistance by extending loans. It may well provide facilities for groups of small producers

where such facilities are beyond the means of individuals but promise to initiate developments that will eventually be capable of self support. But it should not attempt to do for small producers the many things that they can do much better for themselves.

31. The problems discussed above in general terms are those encountered in detail when each small industry is studied by itself. New methods, new equipment, and training in their use are found, upon examination, to be the most urgent need of the industries engaged in husking rice, milling wheat, preserving fruits and vegetables, producing edible fats and oils, tanning leather, and making paper, bricks, tiles, glass, and other goods. Aid in obtaining raw materials is needed, particularly, by the weavers of art silk (rayon) and the manufacturers of tobacco products, sports goods, kitchen utensils, surgical instruments, and cutlery. Aid in designing and marketing their products is needed by the silk weavers, wood turners, and makers of pencils, shuttles and bobbins, toys, hardware, and lacquerware. Credit is needed by all small industry. These needs appear, however, in different combinations and with different urgencies. Each small industry is a problem in itself. Each requires a separate diagnosis and the prescription of appropriate remedies. The Small Industries Corporation should undertake to examine each small industry in turn and to render a report upon its present position, its particular difficulties and the way in which its prospects may be improved.

32. A large part of the market for goods is created by the purchases that government agencies, whether Central, Provincial, or local, make for public purposes. Procurement officers usually tend, as a matter of convenience, to make such purchases from large concerns. It should be the policy of government agencies to give an equitable share of these orders to small industry. The S.I.C. might well serve as an agent for this purpose, obtaining orders from procurement officers and passing them on to small producers through their marketing co-operatives.

**The Handloom Industry**

33. The handloom industry is by far the most important of the small-scale industries. Indeed, it is one of the most important industries in the country. There are said to be some 400,000 handlooms, more than 300,000 of them currently in operation, providing employment to 400,000 workers and affording a livelihood to 2,000,000 persons. Around a fifth of the looms are found in cottages, where they are operated on a part-time basis, weaving cloth for family and village use. Four-fifths are grouped in factories, some of them employing hundreds of workers on hundreds of looms, differing from other factories only in their use of human rather than non-human power.

34. After partition, the industry experienced a rapid growth, the number of looms increasing in a short time from about 100,000 to about 400,000. This growth was particularly marked in the commercial segment of the industry producing for the urban market. The growth, however, was abnormal being traceable largely to temporary and artificial factors. In recent years, the movement has been checked, if not reversed. The handlooms have faced increasing competition from the powerloom industry. The capacity of the powerloom mills has been sharply increased. Cloth has been woven on powerlooms at a lower cost and sold in the market at a lower price. The handlooms have had to struggle to survive.

35. In certain cases, the handloom producer enjoys an advantage. The cottage weaver in the village provides his own labour, has little overhead expense, sells in the local market, and has no transport cost. He has not yet been affected by the competition of the mills. The weaver who specialises in costlier fabrics, artistic designs, novelty items, and goods with prestige appeal, also has little difficulty in surviving. The handloom is more versatile and more economical than the powerloom in making goods with complicated

patterns, especially those involving frequent shuttle changes, short runs, and other characteristics that stand in the way of rapid and sustained production. Such goods, however, are but a fraction of the handloom output. Most of this output takes the form of plain, coarse, utility cloth. It is in the production of this cloth that the commercial handlooms are at a disadvantage. They compete in urban markets with the powerlooms. Their costs are far higher than the powerloom costs.

36. The handloom problem has to do, not with the cottage weaver in the village nor with the weaver of speciality goods, but with the commercial weaver of coarse cloth for sale in urban markets, who encounters the low-cost competition of the mills. There are three approaches to the solution of this problem. The first approach regards the handloom industry as obsolete, inefficient, and doomed to disappearance. It would make no effort to preserve it, leaving competition to take its course. The second approach regards the industry as deserving of support at the expense of the taxpayer and the consumer. In one way or another, it would handicap the powerlooms and subsidise the handlooms in an effort to keep the handlooms at work. The third approach lies between the other two. It accepts the expansion of the powerloom industry and the contraction of the handloom industry as inevitable. It takes the view, however, that this transition should be gradual rather than abrupt. It therefore favours the grant of tax concessions or such other aid as may be needed for this purpose. It assumes, however, that a substantial segment of the handloom industry can be preserved by adopting measures that will enable it to stand on its own feet. It puts the major emphasis on the possible means of increasing the industry's efficiency. Each of these approaches will be discussed in turn.

37. If the Government were to adopt a hands-off policy, leaving competition to take its course, a large part of the handloom industry would shortly disappear. This would involve a serious social cost. Thousands of weavers would be displaced. Some of them could obtain employment at the mills. Others might remain in idleness. Whole communities, specialising in weaving, would lose their source of livelihood. There would be widespread hardship and suffering. The Government cannot permit this to occur. In one way or another, it must intervene.

38. At the opposite extreme is the policy of giving public protection to the industry, for years to come, regardless of cost, no matter how over-extended and inefficient it may be. For this purpose, several devices have been proposed. One device would forbid the mill industry to manufacture certain constructions and widths of cloth, reserving them as the exclusive province of the handloom industry. This is the device employed in India. Its ultimate effectiveness is dubious. The powerloom operators are bound to produce constructions and widths that come to the very edge of the forbidden boundaries. These will be sold at prices well below the prices of the comparable handloom goods. Consumers will shift their purchases, and the market for the exclusive handloom products will decline. Other devices, while permitting competition, would discriminate among competitors. They would handicap the mill looms by imposing on them artificial costs, and would subsidise the handlooms.

39. This approach would impose upon taxpayers the burden of higher taxes and upon consumers the burden of higher prices. It would make the preservation of out-dated and costly techniques a permanent feature of public policy. It would give the industry no incentive to modernise its operations or to improve its efficiency. It fails to recognise the fact that technological advances are necessary for high levels of production and consumption. Although improved techniques have often been opposed from fear of causing unemployment, eventually they have contributed to expanded production, larger national income, and greater total employment. The approach would make for stagnation rather

than progress. If protective measures were thus extended, it is unlikely that they would ever be withdrawn. The nation's economy would thus be condemned, for an indefinite period, to a level of output far lower than it otherwise could be.

40. The third approach places its emphasis upon improvements in the industry's efficiency. It finds possibilities for improvement in the methods used in buying raw materials and in selling finished goods and in the technology of production. In buying raw materials, economies could be realised through strong co-operative associations, as discussed above. In selling finished products, also, advantages could be achieved through co-operatives. In production, gains in efficiency depend upon the improvement of the loom itself.

41. The least efficient looms,—mostly pit looms without fly-shuttle equipment—which make from five to ten yards of cotton fabrics a day cannot conceivably compete with power-driven looms which turn out thirty to forty yards of the same fabrics. Moreover, a hand weaver can operate only one, while a mill operator can handle two or more. These looms, unless supported by public charity, are doomed to eventual extinction.

42. There are better looms, however, that can turn out several more yards of cloth per day. The fastest handlooms now in use in Pakistan are "semi-automatic", the shuttle propulsion, beater, and shafts being operated by independent motion; take-up of the cloth is operated by the weaver and interrupts the weaving. For fast operation, such a loom requires considerable co-ordination which not every weaver possesses to the necessary degree.

43. What is needed is a fully "automatic" loom which co-ordinates all these motions and can thus sustain high speeds for longer periods of time. Such a loom produces twenty yards or more of cloth per day. Several types of these looms exist and are being used to varying extents in other developing countries such as Japan, the Philippines, Indonesia, and India. Such looms are usually operated by pedal motion which in turn synchronises all the secondary movements of shuttle, slay, shafts, and even continuous take-up and let-off, the weaver's hands remaining free for checking, repairing, etc., as they are onpowerlooms. Such "automatic" hand-looms are, in fact, mechanical looms operated by human power; they can be converted to electric operation at a small cost whenever desired.

44. The introduction of these looms, together with improvements in buying and selling, should enable a considerable number of handloom operators to compete on a fairly equal basis with the mill looms in the production of plain fabrics. At the same time, improvements should be made in the equipment making patterned fabrics. Such measures of modernisation as conversion to fly shuttle, mechanical take-up motion, and better bearings or gears for easy change of picks, could greatly increase the efficiency of existing equipment. The cost would be small in relation to the gains achieved.

45. To bring about the re-equipment of a substantial segment of the handloom industry, the Government would have to embark upon an ambitious programme of research, promotion, and education. They would have to import the several types of "automatic" looms from other countries in order to determine which of them could be best adapted to use in Pakistan, or they would have to develop new models. They would have to persuade manufacturers to produce the new looms, perhaps by placing pilot orders, to provide them with models to copy, and to supply them with the necessary tools, jigs, and parts. The Government would have to install the looms in model units, conduct demonstrations, and train hand weavers in their use. They would have to make sure that the purchase of the looms could be financed.

46. It is desirable that the looms should be owned by their operators. It is clear, however, that the operators would not be able, at the outset, to pay for them in full. Sales would best be made on a hire-purchase basis, with purchasers required to make down payments equal to a minor fraction of the final price, and with credit extended for the balance for a considerable period at a moderate rate of interest. The bulk of such credit should be extended by private lenders: by banks, co-operatives, or other lending agencies. Government should facilitate such operations by lending to these agencies and by insuring repayment of their loans.

47. There would be one more task for Government in such a re-equipment scheme. The wear and tear of the warp caused by the jerkiness and the rapidity of operations in the " automatic " loom requires greater attention to the proper preparation of long warps. Casual sizing, such as hand-dipping in the traditional manner, results in an uneven warp, subject to waste both of material and of efficiency, since frequent breakage of threads causes loss of time and reduces the gain in productivity through greater speed. It is therefore essential that facilities should be set up by which prepared and beamed warps are made available to the weavers who embark upon the use of automatic looms. The capacity of such facilities by far exceeds the scale of operation of small weaving establishments. They could doubtless be owned and operated eventually by co-operative associations. But they would have to be provided initially by the Government. Similar action might well be taken in providing finishing facilities for cloth.

48. The Plan offers public assistance for the improvement of 25,000 looms devoted to the production of speciality goods, and for the replacement of 50,000 looms devoted to the commercial production of coarse cloth. Under this programme, the cottage weavers in the villages will retain their present competitive advantage, the weavers of speciality goods will be placed in a competitive position even stronger than the one they occupy today, and a substantial number of the commercial weavers producing coarse cloth will be enabled to survive in competition and to prosper. The least efficient commercial looms may find it impossible to meet the competition of the mills. But the more efficient looms should be able to compete successfully, if not with the better-than-average mill, at least with the poorer-than-average mill. It is the purpose of the programme to give these handloom operations a new lease on life by putting them on a basis that will make them capable of self-support.

49. The programme sets a number of tasks for the Government: research, promotion, and education, the extension of credit, and the initial provision of common facilities. It assumes that present tax concessions are not to be withdrawn. At present, however, it sees no need for public aid in any other form. Even this will cost money, but much less than would be policy of providing permanent support to all the operators in the industry, however antiquated their technology and however high their costs.

50. A fact-finding committee on handlooms was created by the Government of Pakistan in the Ministry of Industries in November 1954. The Committee has made an exhaustive inquiry and has recently presented its final report, but in the time available we have been unable to make a thorough analysis of the report. The report merits most careful consideration ; we recommend that the Committee's proposals for government action should be appraised in the light of the general principles enunciated above.

**Public development programme**

51. Table 1 presents in outline the public expenditure programme for small-scale and cottage industry we propose for the Plan period. The programme derives its rationale from the preceding considerations. It is called a programme of expenditure rather than investment because only a part of it is devoted to investment in physical plant ; the remainder

will go for recurring expenses such as research, demonstration, and training, and for revolving of funds for loans to finance the purchase of equipment and raw materials, and the marketing of finished products. The programme calls for the expenditure of 54·2 million rupees, of which the equivalent of 12·7 million rupees is in foreign currencies. The individual items are discussed in turn below.

### TABLE I

*Small-scale and cottage industry, public development programme,* 1955—60

(Million rupees)

| Scheme | Investment | | | | |
|---|---|---|---|---|---|
| | Total | East | West | Internal | External |
| Research and development institutes ... | 7·50 | 4.00 | 3·50 | 3·50 | 4·00 |
| Model units and demonstration centres ... | 1·50 | 0.75 | 0·75 | 0·90 | 0·60 |
| Small instridues estates ... ... | 3·20 | 1.60 | 1·60 | 2·80 | 0·40 |
| Common facilities centres ... ... | 4·50 | 2.25 | 2·25 | 2·00 | 2·50 |
| Small power units ... ... ... | 0·80 | 0.40 | 0·40 | 0·20 | 0·60 |
| Equipment loan fund ... ... | 18·00 | 9.00 | 9·00 | 18·00 | *Nil* |
| Materials loan fund and supply depots | 2·60 | 1.30 | 1·30 | 2·00 | 0·60 |
| Marketing loan fund ... ... | 8·00 | 4.00 | 4·00 | 8·00 | *Nil* |
| Handloom re-equipment scheme ... | 1·60 | 0·80 | 0·80 | 0·80 | 0·80 |
| Special small-industries schemes ... | 6·54 | 4·82 | 1·72 | 3·36 | 3·18 |
| Total ... | 54·24 | 28·92 | 25·32 | 41·56 | 12.68 |

**Research and development institutes**

52. The programme includes an investment of Rs. 7.5 million to set up two research and development centres, one in each Wing, at an estimated cost of Rs. 4.0 million each, Rs. 0.5 million already having been spent on the centre at Lahore. The foreign exchange component of the investment is Rs. 4.0 million. This merely provides for the centres now being built in Lahore and Dacca to design and produce small tools and simple equipment, and to train tool-makers and shopmen for the small engineering industries. Plans should be drawn up, during this period, to establish institutes for other industries, to fulfil the broader function of developing new techniques of production, inventing new types of equipment, and training workers in their use.

### Model units and demonstration centres

53. The programme provides for the establishment of twelve model units and demonstration centres, six to be located in each Wing. The estimated cost of the centres is Rs. 1.5 million, of which the foreign exchange component is Rs. 0.6 million. This, too, is but a beginning. It should provide a basis in experience, however, upon which plans for centres in other industries and in other locations can be built.

### Small-industries estates

54. A provision of Rs. 3.2 million is made in the Plan to finance the creation of four small-industries estates, two in each Wing, at an estimated cost of Rs. 0.8 million each. The foreign exchange component of the total investment is kept at Rs. 0.4 million. A substantial part of this investment should be recovered, in time, by selling some part of the new facilities to private owners.

### Common facilities centres

55. The Plan provides for the establishment of eight centres, four in each Wing, to provide common services, of the sort described above, to particular Industries. The estimated cost is Rs. 4.5 million, of which Rs. 2.5 million will be in foreign currencies. While the initial investment in these centres will be in public funds, it is expected that they will be recovered as the facilities pass into co-operative ownership.

### Small power units

56. The programme includes Rs. 0.8 million to permit the provision of four small power unit centres, two in each Wing. Of this, the equivalent of Rs. 0.6 million will be required in foreign exchange. The power units should pay for themselves, in part, in charges made for the sale of power.

### Equipment loan fund

57. A provision of Rs. 18.0 million is made in the Plan for loans to banks or co-oprative associations to assist them in financing the purchase of productive equipment by private owners. Of this, it is estimated that as much as half will be needed to assist in financing the re-equipment of the handloom industry, discussed above, and the development of small-scale industries producing building materials, such as structural clay products, fabricated wood and bamboo sections, and straw insulator sections. The remaining half should be available to finance the equipment needs of other industries. Altogether, a sum of Rs. 9.0 million is provided to make loans for equipment in each Wing.

### Materials loan fund and supply depots

58. The Plan provides a total of Rs. 2.6 million, or Rs. 1.3 million for each Wing, to aid small producers in obtaining raw materials. This sum might best be used, if possible, to extend loans to finance joint buying by co-operative associations. As a temporary measure, in the absence of such associations, it would cover the cost of setting up supply depots under public ownership and management.

### Marketing loan fund

59. A provision of Rs. 8.0 million is made in the Plan for loans to enable co-operative associations to finance the marketing of finished goods. Of this, Rs. 4.0 million would be available for use in each Wing. The total provided for loans for equipment, materials, and marketing is thus Rs. 28·6 million, or Rs. 14.3 million for each Wing. The division

of these totals into the three categories is based upon a rough estimate of relative needs. It is not intended as a limitation on the use of loan funds. The hands of the Small Industries Corporation should not be tied in determining the purposes for which loans are to be made.

### Handloom re-equipment scheme

60. We estimate that the funds required to rehabilitate the handloom industry will total Rs. 30 million during the Plan period. Included in this figure is the cost of replacing some 50,000 obsolete looms with fast pedal-looms, and improving another 25,000 looms by partial mechanisation. Included also is the cost of providing facilities for preparing yarn and finishing cloth.

61. Of this sum, the major part should come from private investors, in the form of down payments by producers buying new looms on a hire-purchase basis, and credit extended by banks and co-operative associations. The Government's contribution to this financing should take the form of investment in common facilities centres or loans to banks and co-operatives. Funds will also be needed, under the handloom programme, to finance co-operative buying of raw materials and co-operative selling of finished goods. Here, again, the handloom industry will be a major claimant for public loans. The cost of this part of the programme is included in the provision for common facilities centres and for the equipment, materials, and marketing loan funds discussed above.

62. There will be need, however, for sums in addition to those included above to cover the costs of importing and testing new looms, placing pilot orders for the domestic manufacture of such looms, preparing working drawings for the manufacturers, or supplying them with sample looms and with necessary tools, jigs, and parts, equipping model units with the looms, and conducting demonstrations of their use. For these purposes, a separate provision of Rs. 1.6 million is made in the Plan.

### Special small-industry schemes

63. The last item in Table 1 covers a number of specific schemes presented by the Provincial Governments for the development of particular small industries for which allowance has been made. These include the following :

| In East Pakistan : | (Million rupees) |
|---|---|
| Sericulture development centre, involving installation of filament basins, establishment of a throwing section, and silk conditioning house, etc. | 2·00 |
| Research and training institute for the shellac industry ... ... ... ... ... ... | 0·50 |
| Scheme to develop the hat industry of Sylhet ... ... ... ... ... ... | 0·32 |
| Marketing scheme to revive the mat industry of Khulna ... ... ... ... | 0·03 |
| Marketing scheme to revive the pen-holder industry of Khulna ... ... ... ... | 0·03 |
| Marketing scheme to revive the umbrella stick industry ... ... ... ... | 0·02 |
| Expansion of the government film studio in Dacca ... ... ... ... ... ... | 1.30 |
| Expansion of the industrial museum in Dacca ... ... ... ... ... ... | 0·62 |

| In West Pakistan : | Million Rupees. |
|---|---|
| Sericulture development centre | 1·00 |
| Scheme for the development of basketry in excluded area of Dera Ghazi Khan, including training, and aid in obtaining raw materials and making sales. | 0·47 |
| Installation of a date research laboratory at Khairpur | 0·15 |
| Expansion of industrial home at Khairpur | 0·10 |

64. Of the whole programme, about Rs. 13 million, or nearly one-fourth, takes the form of outright grants for research, education, and the like, which are not to be repaid. Another Rs. 13 million, or nearly one-fourth, takes the form of public investment, much of which will yield an annual income, and much of which will be recovered as the properties are sold. About 28 million rupees, or more than half, takes the form of revolving funds to be devoted, in the main, to making loans.

**Implementing the public development programme**

65. The preceding references to the Small Industries Corporation have pointed to the importance of that institution for the future of small industry in Pakistan. Before this Corporation and its subsidiary companies complete their organisation and procedures, it may be premature to discuss their prospective operations in detail. A few guiding thoughts may be properly expressed, however, about a division of labour in promoting and assisting the development of small industry.

66. One matter for consideration is the relation between the Corporation and the other agencies. The Corporation's Board of Directors is enjoined by statute to " act on commercial considerations ". While the Board is to be guided in questions of policy by the directions of the Central Government, it may be assumed that the Corporation's efforts are to be primarily devoted to operations which can be made self-supporting, at least in the long run. The promotion of development, however, includes a number of functions which can never be self-supporting, such as research, experimentation, demonstration, and training. It is sometimes desirable, moreover, that other activities which promote development should be supported with grants or other types of subsidies. Such activities cannot be undertaken by an agency that is guided by commercial considerations alone. This function must be assigned, therefore, to other public agencies. Initiative in planning for the development of small industry, too, must be taken by the Ministries and Directorates responsible for the different sectors of development. The Small Industries Corporation has a major role to play, but it cannot occupy the field alone.

67. Consideration must also be given to the division of labour among the various levels of government. Initiative in developing and executing plans for small industry might well be decentralised, since regional and local officials are more familiar than central authorities with the requirements and potentialities of their own areas. This principle applies not only to the relationship between the Central and Provincial Governments but also to that between the Small Industries Corporation and its subsidiaries in the two Wings. The central corporation is best placed to serve as a link with other countries in obtaining supplies or equipment, securing technical information or foreign experts, and promoting export sales. It must guide general policy in accordance with the Central Government's directions, control the distribution of funds, and provide administrative co-ordination between the Wings. However, details of individual schemes, execution in conformity with regional requirements, decisions on loans, and storage of supplies would best be left to the subsidiary corporations. There should be the closest co-operation between these corporations, on the one hand, and the Provincial Government agencies and administrative divisions, on the other.

68. Although the development of cottage-craft products for export is an important phase of the Small Industries Corporation's duties, it should not be considered as its only, or even primary, responsibility. Of greater importance to the national economy is the improvement and development of the basic village industries which produce a considerable share of essential consumer goods. Such small and cottage industries as oil pressing, flour milling, leather tanning, shoe making and clay products, which turn out common items for village consumption, account for a large part of the gross national product, and their prosperity should be the Corporation's chief concern.

**Private Investment Programme**

69. Table 2 presents the private investment programme we recommend for small-scale and cottage industry during the Plan period. The programme contemplates private investment of Rs. 117·2 million. Of this, Rs. 69·2 million is for expanded capacity and Rs. 48 million for modernisation. The foreign exchange component of this investment is expected to be about 30 per cent of the total outlay.

70. The productive capital invested in small industries in Pakistan in 1954 was about Rs. 324 million. The new investment contained in the public development programme, and that represented by the private investment programme, taken together, call for an increase of approximately Rs. 160 million, or about 50 per cent. Of the new money something more than a quarter is public and the rest private.

71. Private investment is voluntary. Investment of the magnitude contemplated may or may not occur. It is more likely to occur, however, under the stimulus of favourable public policies. The money devoted to measures recommended in the public programme—research and training, the provision of common facilities, and the extension of loans—should lead to private investment many times as large.

72. Opportunities for investment are present in abundance. Investment is needed to modernise and expand existing industries. The Plan contemplates an investment of Rs. 26 million in the handloom industry, Rs. 8 million in the vegetable oils industry, Rs. 5·6 million in the gur industry, Rs. 4 million or more each in tailoring, leather footwear, and paddy husking, Rs. 2 million or more each in textile dyeing and printing, salt, bricks and tiles, and washing soaps, and Rs. 1 million or more in many other small-scale industries.

73. There are also opportunities for profitable investment in new industries : the extraction of tannin, the extraction of tung oil, and the gathering and preservation of wild honey in East Pakistan ; the manufacture of white flour products such as macaroni and spaghetti, and the production of woollen garments in West Pakistan ; the processing of raw fibres which abound in various parts of the country ; the production of hand-made paper, cosmetics, and better grades of soap ; the fabrication of plastics by moulding and extrusion ; the manufacture of glazed clay pipe, fire bricks, insulators, and sanitary porcelain ware. Such products are produced in small establishments in other countries. The resources required for their production are available in Pakistan. Many of them must now be imported. Domestic production would increase the nation's income, provide employment, and save foreign exchange. To this end, new investment is required. If properly encouraged, there is no reason to suppose that it will not occur.

74. The total output of small-scale and cottage industry, as shown in Table 2, was valued in 1954 at Rs. 4,116 million. We estimate that the programme proposed in this Chapter can raise this figure, by 1960, to Rs. 6,650 million, an increase of some Rs. 2,500 million, or more than 60 per cent. Of this gain, about Rs. 1,000 million is expected to result from improvements in the flow of raw materials and in the utilisation of existing capacity, and about 1,500 million rupees from investment in new capacity, in both old and new industries.

## TABLE 2

*Small-scale and cottage industries private investment programme*, 1955—60

| Sector | Unit | Production, 1954 | | Increase in annual production by 1960 | Productive capital invested, 1954 | Expected investment, 1955-56 | | |
|---|---|---|---|---|---|---|---|---|
| | | Quantity | Value | | | Investment in increased production | Investment in modernisation | Total |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | (Rs. million) | (Quantity) | (Rs. million) | (Rs. million) | (Rs. million) | (Rs. million) |
| **Agricultural and food industries :** | | | | | | | | |
| Gur ... ... ... ... | Thousand tons | 949 | 256.0 | 475 | 9.8 | 4.4 | 1.2 | 5.6 |
| Vegetable oils ... ... ... | Thousand tons | 30 | 48.0 | 15 | 20.0 | 5.6 | 2.4 | 8.0 |
| Cigars and cheroots ... ... | Thousands ... | 1,107 | 0.1 | 2,214 | 0.1 | 0.1 | (1) | 0.1 |
| Salt ... ... ... ... | Thousand maunds. | 2,000 | 10.0 | 4,000 | 1.2 | 2.0 | 0.1 | 2.1 |
| Fruit canning and preservation ... | Thousand lbs. | 2,400 | 1.2 | 800 | 0.8 | 0.4 | 0.2 | 0.6 |
| Coir and rope making ... ... | Tons ... | 1,000 | 0.5 | 3,000 | 0.3 | 0.7 | 0.1 | 0.8 |
| Paddy husking ... ... ... | Thousand tons | 6,400 | 1400.0 | 444 | 25.0 | 1.0 | 3.0 | 4.0 |
| Wheat milling ... ... ... | Thousand tons | 2,300 | 747.5 | *Nil* | 11.5 | *Nil* | 1.4 | 1.4 |
| Kutcha jute baling ... ... | Thousand kutcha bales. | 600 | 42.0 | *Nil* | 2.5 | *Nil* | *Nil* | *Nil* |
| Bidi ... ... ... ... | Millions ... | 25,000 | 100.0 | 2,500 | 10.0 | 1.1 | 0.2 | 1.3 |
| Vermicelli, macaroni, spaghetti, etc. | Tons ... | 30 | 0.1 | 30 | 0.2 | 0.2 | (1) | 0.2 |
| Bakery products ... ... ... | Tons ... | 4,000 | 6.0 | 400 | 2.0 | 0.2 | 0.2 | 0.4 |
| Tannin extract ... ... ... | Tons ... | *Nil* | *Nil* | 1,000 | *Nil* | 1.1 | *Nil* | 1.1 |
| Honey ... ... ... | Thousand lbs. | 1,000 | 1.0 | 250 | 0.3 | 0.2 | *Nil* | 0.2 |
| Sub-Total ... | | ... | 2612.4 | ... | 83.7 | 17.0 | 8.8 | 25.8 |
| **Textiles :** | | | | | | | | |
| Handloom ... ... ... | Million yds. ... | 360 | 450.0 | 40 | 105.0 | 3.6 | 22.4 | 26.0 |
| Tailoring ... ... ... | Rs. million ... | NA (3) | 60.0 | 15(2) | 12.0 | 3.0 | 1.4 | 4.4 |
| Carpets and rugs ... ... | Thousands ... | 75 | 6.5 | 2 | 2.1 | 0.6 | 0.2 | 0.8 |
| Hosiery and other knitted goods ... | Thousand lbs. | 2,000 | 5.5 | 600 | 4.5 | 1.3 | 0.5 | 1.8 |
| Sericulture ... ... ... | Thousand lbs. | 60 | 0.6 | 45 | 0.3 | 0.4 | 0.1 | 0.5 |
| Braid tape, lace, etc. ... ... | Thousand lbs. | 270 | 1.0 | 54 | 0.8 | 0.2 | 0.2 | 0.4 |
| Sewing thread ... ... ... | Thousand lbs. | 540 | 1.4 | 216 | 1.4 | 0.7 | 0.2 | 0.9 |
| Sub-total ... | | ... | 525.0 | ... | 126.1 | 9.8 | 25.0 | 34.8 |

[1] Less than Rs. 0.05 million.
[2] Rs. million.
[3] NA—Not available.

TABLE 2—*contd.*

| Sector | Unit | Production, 1954 | | Increase in annual production by 1960 | Productive capital invested, 1954 | Expected investment, 1955—60 | | |
|---|---|---|---|---|---|---|---|---|
| | | Quantity | Value | | | Investment in increased production | Investment in modernisation | Total |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | (Rs. million) | (Quantity) | (Rs. million) | (Rs. million) | (Rs. million) | (Rs. million) |
| **Cane, Bamboo and Wood Industries :** | | | | | | | | |
| Sports goods ... ... ... | Rs. million ... | NA | 7.5 | 1.7(²) | 2.1 | 0.7 | 0.1 | 0.8 |
| Cane and bamboo ... ... | Rs. million ... | NA | 5.0 | 3.5(²) | 1.4 | 1.6 | 0.1 | 1.7 |
| Shuttles and bobbins ... ... | Rs. million ... | NA | 0.4 | 1.2(²) | 0.3 | 0.8 | (¹) | 0.8 |
| Boat building ... ... ... | Thousands ... | 60 | 30.0 | 10.0 | 3.0 | 1.0 | 0.4 | 1.4 |
| Wood furniture ... ... | Rs. million ... | NA | 10.0 | 1.5(²) | 4.5 | 1.5 | 0.3 | 1.8 |
| Wood turning and toy making ... | Rs. million ... | NA | 0.2 | 0.2(²) | 0.1 | 0.2 | ... | 0.2 |
| Sub-total ... | | ... | 53.1 | ... | 11.4 | 5.8 | 0.9 | 6.7 |
| **Leather and Rubber Industries :** | | | | | | | | |
| Leather tanning : | | | | | | | | |
| Upper leather ... ... | Million sq. ft. | 2.5 | 3.7 | 1.2 | 1.5 | 1.0 | 0.2 | 1.2 |
| Sole leather ... ... ... | Million lbs. ... | 1.2 | 1.6 | 0.1 | | | | |
| Leather footwear ... ... | Million pairs ... | 12 | 120.0 | 3.0 | 15.0 | 3.4 | 0.9 | 4.3 |
| Leather goods ... ... ... | Rs. million ... | NA | 5.0 | 1.0(²) | 0.6 | 0.4 | 0.1 | 0.5 |
| Rubber products ... ... | Rs. million ... | NA | 0.4 | 0.3(²) | 0.2 | 0.2 | ... | 0.2 |
| Sub-total ... | | ... | 130.7 | ... | 17.3 | 5.0 | 1.2 | 6.2 |
| **Glass and Ceramics :** | | | | | | | | |
| Glass bangles ... ... ... | Tons ... | 1,200 | 1.2 | 600 | 0.7 | 0.4 | 0.1 | 0.5 |
| Bricks and tiles ... ... ... | Millions ... | 200 | 12.0 | 100 | 2.5 | 1.7 | 0.3 | 2.0 |
| Pottery (glazed and unglazed) ... | Rs. million ... | NA | 5.0 | 3(²) | 1.2 | 0.8 | 0.1 | 0.9 |
| Sub-total ... | | ... | 18.2 | ... | 4.4 | 2.9 | 0.5 | 3.4 |
| **Chemicals :** | | | | | | | | |
| Washing soap ... ... ... | Thousand tons | 40 | 40.0 | 10.0 | 8.0 | 1.8 | 0.2 | 2.0 |
| Perfumery and cosmetics ... ... | Rs. million | NA | 2.0 | 1.0(²) | 0.9 | 0.6 | 0.1 | 0.7 |
| Paints and polishes ... ... | Rs. million ... | NA | 1.5 | 0.7(²) | 0.7 | 0.5 | 0.1 | 0.6 |
| Sub-total ... | | ... | 43.5 | ... | 9.6 | 2.9 | 0.4 | 3.3 |

[1] Less than Rs. 0.05 million.

[2] Rs. million.

## TABLE 2—*concld.*

| Sector | Unit | Production, 1954 | | Increase in annual production by 1960 | Productive capital invested, 1954 | Expected investment, 1955—60 | | |
|---|---|---|---|---|---|---|---|---|
| | | Quantity | Value | | | Investment in increased production | Investment in modernisation | Total |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | (Rs. million) | (Quantity) | (Rs. million) | (Rs. million) | (Rs. million) | (Rs. million) |
| **Metal Products :** | | | | | | | | |
| Surgical instruments ... ... | Rs. million ... | NA | 2·2 | 0·6(2) | 0·8 | 0·5 | 0·1 | 0·6 |
| Cutlery ... ... ... ... | Rs. million ... | NA | 1·5 | 0·4(2) | 0·3 | 0·3 | (1) | 0·3 |
| Small agricultural implements ... | Rs. million ... | NA | 2·0 | 1·52 | 0·6 | 0·9 | 0·1 | 1·0 |
| Non-ferrous metals (utensils, fittings, etc.). | Tons ... | 1,000 | 5·5 | 400·0 | 2·4 | 1·1 | 0·1 | 1·2 |
| Locks ... ... ... ... | Thousand dozens | 600 | 1·8 | 200·0 | 0·7 | 0·4 | (1) | 0·4 |
| Electrical appliances and fittings ... | Rs. million ... | NA | 0·5 | 1·0(2) | 0·3 | 0·8 | (1) | 0·8 |
| Torches and batteries ... ... | Thousands ... | 40 | 0·2 | 1·5 | 0·1 | 0·2 | *Nil* | 0·2 |
| Sheet metal ... ... ... | Tons ... | 9,600 | 12·0 | 2880·0 | 4·0 | 1·3 | 0·2 | 1·5 |
| Wire nails, netting and other products. | Tons ... | 800 | 2·0 | 800·0 | 0·8 | 1·1 | (1) | 1·1 |
| Sub-total ... | | ... | 27·7 | ... | 10·0 | 6·6 | 0·5 | 7·1 |
| **Miscellaneous Industries :** | | | | | | | | |
| Umbrellas ... ... ... | Thousands | 600 | 4·2 | 300·0 | 1·2 | 1·6 | 0·1 | 1·7 |
| Buttons ... ... ... | Thousand gross | 150 | 0·6 | 75·0 | 0·3 | 0·3 | (1) | 0·3 |
| Brushes ... ... ... | Rs. million ... | NA | 0·5 | 0·3(2) | 0·3 | 0·3 | (1) | 0·3 |
| Musical instruments ... ... | Rs. million ... | NA | 0·8 | 0·5(2) | 0·2 | 0·1 | *Nil* | 0·1 |
| Plastics ... ... ... ... | Rs. million ... | NA | 1·0 | 1·0(2) | 0·6 | 0·8 | (1) | 0·8 |
| Stationery (paper and board products, etc.). | Rs. million ... | NA | 3·0 | 2·0(2) | 1·0 | 1·4 | 0·1 | 1·5 |
| Textile dyeing and printing ... | Rs. million ... | NA | 8·0 | 2·5(2) | 2·0 | 2·0 | 0·5 | 2·5 |
| Zari, embroidery, etc. ... ... | Rs. million ... | NA | 1·3 | 1·5(2) | 0·7 | 0·8 | (1) | 0·8 |
| Sub-total ... | | ... | 19·4 | ... | 6·3 | 7·3 | 0·7 | 8·0 |
| Total ... | | ... | 3430·0 | ... | 268·8 | 56·7 | 38·0 | 94·7 |
| Other Industries not listed ... ... | | ... | 686·0 | ... | 55·0 | 13·5 | 10·0 | 23·5 |
| GRAND TOTAL ... | | ... | 4116·0 | ... | 323·8 | 70·8 | 48·0 | 118·8 |

[1] Less than Rs. 0.05 million.

[2] Rs. million.

# SECTION D

# TRANSPORT AND COMMUNICATIONS

# CHAPTER 23

# TRANSPORT

## Introductory

1. Transport in Pakistan has two uncommon features: the problem of movement between the two Wings of the country across a gap of over 1,000 miles of foreign territory, and the pronounced difference in the pattern of transport in the two Wings. The link between East and West Pakistan is at present assured over India through the air, and around India by sea, and is beginning to be bridged overland by rail. The railway and road systems of Pakistan and India are connected at several points across the frontiers in East and West and through traffic is physically possible, but since partition has been restricted though these restrictions are easing.

2. The difference in the inland transport systems of East and West Pakistan is emphasised by topographical, physical and climatic conditions. The backbone of West Pakistan's transport system is a broad-gauge railway network, with its centre far inland, at Lahore, and only one outlet to the sea at Karachi. It is a system of main lines, one in each of five parallel river valleys, interlinked, and stretching from the coast to the Afghanistan and India frontiers. One main line spur leaves this central network to serve the former Baluchistan, with Quetta as the centre. Supplementing the railways, a road network covers the same ground on a roughly similar pattern, most of it concentrated again in the populous parts of the Indus basin. Inland water transport is insignificant. The Indus has many tributaries, but there are no river ports inland, nor is there a sea port at the mouth of this river system. Air services link the principal towns together, and with the outside world, through one very important international airport at Karachi. Inland transport connections with neighbouring countries are by rail and road, most of them with India. Two railheads reach the Afghanistan frontier and one goes across the Iranian frontier up to Zahidan. All three railroads have road connections, but no railways leading right into the neighbouring countries except India. Traffic across these frontiers is insignificant at present.

3. The pattern in East Pakistan is entirely different. Here, the backbone is the inland waterways system which covers practically the whole country and penetrates into the remotest corners. Regular steamship lines and countless private craft sail on all the waters and in and out of Indian territory, providing approximately three fourths of all inland transport service. Inland water transport is supplemented by the railways, which are divided into two separate networks, one east and the other west of the Brahamputra river, connected by ferries. The eastern system is of metre gauge and has an outlet, Chittagong Port, on the Bay of Bengal. The western system is itself divided into broad gauge and metre gauge lines. There is no trunk road system proper. Air links connect some of the inland towns.

4. The nature of the two transport systems makes co-ordination particularly important. In West Pakistan, a powerful railway system and a growing road transport system operate side by side and should complement each other. In East Pakistan, the old established inland water transport system has to be co-ordinated with the railway system. Cognizance has also to be taken of the expansion of road and air transport.

5. The transport system was badly disrupted by partition, especially in East Pakistan where roads and railways were cut by the new frontiers. Port facilities were inadequate to handle more than a fraction of the traffic required by the new country. Transport

facilities between the two Wings were practically non-existent. The whole transport system had to be re-oriented. In East Pakistan it had focussed on Calcutta and had to be re-oriented towards Dacca and Chittagong, while in West Pakistan the entire emphasis had to shift to Karachi which had to change from handling mostly outgoing cargoes to incoming traffic. By 1955 the re-orientation had taken place, and some progress had been made towards an efficient transport system.

6. At partition, Karachi port was suddenly called upon to cope with all the international and coastal traffic of the whole of West Pakistan. It has been handling an increasing volume of traffic year, after year, rising from 2·5 million tons in 1948-49 to a maximum of 4 million tons in 1952-53. Chittagong was the only sea port of East Pakistan at the time of partition, and had a capacity of only half-a-million tons a year; by 1955 its capacity had been expanded to well over 3 million tons a year. A second port was provided for East Pakistan by opening an anchorage at Chalna, lately shifted to Mangla, which is handling nearly half-a-million tons of cargo annually. At partition the country had practically no shipping of its own. Since then seven national shipping companies have been formed, and there are now 20 Pakistani merchant ships in commission, with a dead weight tonnage of about 1,80,000 handling over a million tons between East and West Pakistan, plus some Haj traffic and tramp services.

7. The railways suffered a great deal during the depression of the thirties and World War II and finally at partition. Rehabilitation therefore required first priority at independence, and it absorbed 350 million rupees by 1955. Another 150 million rupees have been spent on railway development; 78 powerful diesel-electric engines have been put into operation to save imported coal and to improve service; 25 steam locomotives, 393 coaches and 11,500 wagons have been added, and about 100 miles of new railway lines have been constructed. Service, particularly for third-class passengers, has been improved by providing additional waiting halls, passenger shelters on platforms, drinking water, and fans in lower class compartments. By the beginning of the Plan period, replacement of rolling stock was well under way, but improvement of service was impeded by a badly-worn track.

8. About 2,850 miles of all-weather roads and 1,500 miles of other roads have been constructed since partition, and about Rs. 133 million worth of further road construction work is in progress. There are now about 9,000 miles of all-weather roads and 50,000 miles of other roads in the country. A large amount of modern road-making machinery has been imported and is available for future development of the road network. Road transport has been substantially expanded since independence, partly by public services, in the former Punjab, North West Frontier Province, and Sind.

9. At partition, there was no airline based in the country. Orient Airways, which had its base in Calcutta, was transferred to Karachi after partition, and has been amalgamated with Pakistan International Airlines. Frequent scheduled services now connect the two Wings, serve the major cities in each Wing, and go to cities in India and to London. Runways have been improved and landing facilities provided, making Karachi and Dacca into good international airports.

10. A beginning has been made in the co-ordination of transport. Road Transport Boards in the former Punjab, Sind and the North West Frontier Province have Railway representation and one of their functions is to achieve rail-road co-ordination. In East Pakistan a Transport Co-ordination Board has been formed.

11. As the economy of the country develops, the transport system will be called upon to handle increasing loads. The largest increase of commodities to be moved will be in agriculture, where total production is expected to increase by about fifteen per cent during the Plan period. New industries, and new and expanded towns will need new and better road and railway transport, and (in East Pakistan) also better inland water transport. The country's foreign trade will require more efficient port capacity. Because of competing claims on available resources, it is not possible quickly to remedy all the imperfections in the existing transport system. But the Plan embodies proposals designed to achieve what is feasible and economic to ensure that lack of transport shall not check the development of the country. They would absorb one-fifth of all the public resources we expect to be available for development during the Plan period.

12. The main proposals may be summarised as follows :

(*a*) Rehabilitation of railway track and rolling stock as necessary to maintain efficient railway transport capacity ;

(*b*) Rehabilitation of the Port at Karachi and extensive improvements and additions to the wharves and their equipment ; further improvements at Chittagong and Khulna-Mangla ;

(*c*) A reorganised and expanded coast-wise and international shipping service ;

(*d*) Better inland water transport in East Pakistan, with improved waterways, and navigational aids, and new vessels,

(*e*) 1,800 miles of new roads, and substantial improvements to 2,000 miles of existing roads.

## RAILWAYS

### Progress since partition

13. The railways constitute the most valuable capital asset of the country and are the largest single national commercial undertaking. The North Western Railway is the main transport organisation and by far the largest carrier of goods and passengers in West Pakistan. The East Bengal Railway meets a sizeable share of the total transport needs in East Pakistan and carries traffic requiring speedy movement on the main transport routes.

14 Before independence, our railways formed part of the undivided Indian Railway system and shared its fortunes. Since the world depression which began in 1929 and until partition, Indian Railways were unable to maintain their assets in a sound condition. The depression led to the virtual suspension of development and renewals and even maintenance was reduced to a low level. Hardly had the country begun to recover from the depression when World War II came and materials for replacement and maintenance became scarce while the equipment was subjected to unprecedented wear and tear due to the stress of war time needs. The East Bengal Railway suffered in particular because of the Japanese war on the Indo-Burmese frontier. Even after the termination of hostilities, the availability of materials did not improve and little could be done before partition. In 1947, Pakistan received a portion of the railway system in the East, broken into several parts with broad and metre gauge sections and deprived of access to Calcutta which had served as the port as well as the market for two centuries. This railway was burdened with a large surplus staff in the lower ranks which could be absorbed only slowly. In the West, Pakistan received a large portion of the North Western Railway with the entire unremunerative strategic sections in former Baluchistan and the North-West Frontier Province. Both the Railways suffered as a result of large scale changes in the staff at all levels.

15. The division thus created important problems for the Railways. New sections had to be constructed on the East Bengal Railway to link the broken parts into an integrated system. Due to the loss of Calcutta and the consequent change in the pattern of traffic a new harbour had to be constructed at Chittagong. The workshops at Chittagong which had been dismantled as a measure of denial to the enemy during World War II had to be rebuilt. Because of the diversion of traffic from Calcutta to Chittagong and the stoppage of India's cross traffic between Calcutta and Assam, the broad gauge section lost most of its traffic. The North Western Railway was better placed ; its most serious problem arose from the uncertain and reduced supplies of coal from India, solved in part by converting some of its steam engines from coal to furnace oil and purchasing diesel electric locomotives. The immediate problems of readjustment created by partition have been largely overcome. But the full rehabilitation of the railway system from years of under-maintenance and war time heavy use is far from complete ; this should remain the main object of expenditure on the railways during the Plan period.

16. The total book value of the capital assets of the Railways at partition was 1,330 million rupees which was reduced to 1,150 million rupees by writing down the value of strategic sections. A sum of 508 million rupees was spent between 1947 and 1955 on development, replacement and rehabilitation. The main assets needing rehabilitation now are track and rolling stock ; buildings, machinery, structural works, bridges etc. need restoration on a much smaller scale.

The following new units of rolling stock were brought into service by 31st March, 1955 :

| | N.W. Rly. | E.B. Rly. |
|---|---|---|
| Steam Engines ... ... ... ... ... ... ... | ... | 25 |
| Diesel Electric Engines ... ... ... ... ... ... | 53 | 25 |
| Carriages ... ... ... ... ... ... ... ... | 117 | 158 |
| Wagons ... ... ... ... ... ... ... ... | 3,992 | 2,812 |

In addition the following units were fitted with new bodies and put on the line :

| | N.W. Rly. | E.B. Rly. |
|---|---|---|
| Carriages ... ... ... ... ... ... ... ... | 118 | ... |
| Wagons ... ... ... ... ... ... ... ... | ... | 4,708 |

A number of other units were on order on that date. A total expenditure of 240 million rupees has been incurred on the rehabilitation of rolling stock. Work done on the track does not lend itself to statistical presentation : an expenditure of Rs. 110 million has been incurred which must have enabled the Railways to complete a substantial amount of rehabilitation despite difficulties in procuring rails and sleepers.

### Rehabilitation and development programme

17. The following important considerations have been borne in mind while considering the rehabilitation programme :

(*a*) In general railway programmes should be spread over a long period corresponding as far as possible to the effective ages of the various assets. This would enable the country to have a steady programme of foreign purchases as well as of internal manufacture. Concentrations of large programmes in short periods lead to inconvenient fluctuations in the claims made on resources, and require excessive manufacturing capacity. This principle cannot be applied fully in the immediate years ahead because of the urgency of completing the rehabilitation programme rapidly but it should nevertheless be borne in mind.

(*b*) The normal lives of assets shown in the Railway code are intended to serve as a guide and not as a firm basis of replacement programmes.

(*c*) Since 1930 considerable experience has been acquired of wear and tear under abnormal conditions of traffic with stock of varying ages. The Railways have managed to keep in service locomotives, carriages and wagons far above standard ages, but perhaps at some inconvenience to the public. They have, however, been able to meet the traffic requirements without any serious breakdown. Rehabilitation will enable them to achieve a higher standard of efficiency and to render better service to the public, but the fruits of past experience should be incorporated in railway practices to the maximum extent feasible.

(*d*) Measures are needed to conserve foreign exchange. The repair and overhaul cost estimates which justified any unit being pronounced uneconomical need to be reviewed. The standard is the serviceability of a rolling stock unit, and it should be retained in service so long as the costs, in particular the foreign exchange cost, of repairing and operating it have a reasonable relationship to the cost of replacing it. The railway workshops are well equipped and could be improved.

(*e*) Diesel locomotives have been introduced on the railways, but because of arrears of renewals on the track and bridges they cannot be used to their full economic capacity. A steadily maintained programme of track rehabilitation would go a long way to repair this deficiency. With an improved track it would be possible to obtain economies in the use of rolling stock, though this would not be possible without a determined effort to improve the efficiency of the staff.

(*f*) During the Plan period the rehabilitation of track will have the highest priority. Hitherto rolling stock has been improved more than the track, with some degree of consequent imbalance between the vehicle and the track, which has to be redressed in order to make the most economical use of railway assets. Rolling stock should be next in priority to the track.

### Track

18. We have provided in the Plan a sum of 220 million rupees for the renewal of permanent-way on the basis that as usual full use will be made of materials in the line. This we expect would be enough to rehabilitate all main lines and important branch lines. Difficulties in the renewal of track have been experienced in the past from shortage of rails and sleepers. Long term contracts with a price adjustment clause should be considered for rail purchases. For sleepers special efforts to exploit local sources are contemplated.

To meet their need the Railways should enter the market as a commercial customer. This would go some way to solve their timber difficulties especially if the railways were to employ a senior Forest Officer as their Adviser on sleepers. The Railways have decided on a suitable design of reinforced concrete sleepers and have started manufacturing them. This should afford some measure of relief even though the use of such sleepers will for sometime be experimental only.

**Rolling stock**

19. The operational requirements of the railways are as follows :

| | | N.W.R. | E.B.R. | Total |
|---|---|---|---|---|
| Steam engines | BG | 585 | 110 | 695 |
| | MG | 39 | 210 | 249 |
| Diesel electric engines | BG | 102 | ... | 102 |
| | MG | ... | 51 | 51 |
| Wagons | BG | 22,488 | 3,211 | 25,699 |
| | MG | 1,018 | 13,441 | 14,459 |
| Carriages | BG | 1,422 | 275 | 1,697 |
| | MG | 100 | 710 | 810 |

The assumptions about the working lives of rolling stock which have been used for calculating the replacement needs compare with the Code figures as follows :

| | Working life assumed | Working life under code |
|---|---|---|
| Steam engines | 45 | 35 |
| Wagons | 45 | 40 |
| Carriages | 35 | 30 |

On these assumptions, the requirements of the railways for new vehicles during the Plan period, taking into account the present numbers of vehicles and their ages, are as follows on a purely arithmetical basis :

| | | N.W.R. | E.B.R. | Total |
|---|---|---|---|---|
| Steam engines | B.G. | 214 | 39 | 253 |
| | M.G. | 15 | 28 | 43 |
| Diesel electric engines | B.G. | 35 | ... | 35 |
| | M.G. | ... | 26 | 26 |
| Wagons | B.G. | 7418 | 120 | 7538 |
| | M.G. | 442 | 3561 | 4003 |
| Carriages | B.G. | 689 | 118 | 807 |
| | M.G. | 25 | 334 | 359 |

20. These figures need to be modified to take account of several favourable factors, such as the following :—

(*a*) The rehabilitation of track will increase the effective capacity of rolling stock because of higher speeds ;

(*b*) Diesel locomotives have higher speeds and lower maintenance. They also increase the capacity of other rolling stock ;

(*c*) Even the increased working lives we have assumed for wagons and carriages are conservative, especially for East Pakistan, because of lower speeds on the railways there. Replacements made on actual condition will in all probability turn out to be less than the requirements arrived at on a purely arithmetical basis, even on the increased assumed ages.

On the basis of present information about the working lives of rolling stock, we consider that no new engines or carriages beyond these on order need be obtained during the first 2 or 3 years of the Plan period, but some rolling stock would be required in the later years. The following figures represent the requirements which should be fulfilled during the Plan period :—

| | No. already on order | More to be obtained | Total |
|---|---|---|---|
| *N.W. Railway* : | | | |
| Diesel electric engines ... ... ... ... | 35 | 37 | 72 |
| Carriages ... ... ... ... ... | 308 | 150 | 458 |
| Wagons ... ... ... ... ... ... | 2,525 | 3,234 | 5,759 |
| Diesel rail cars with trailers ... ... ... ... | 24 | ... | 24 |
| *E.B. Railway* : | | | |
| Diesel electric engines ... ... ... ... | 26 | ... | 26 |
| M.G. boilers ... ... ... ... ... | 2 | 30 | 32 |
| Carriages ... ... ... ... ... ... | 106 | 40 | 146 |
| Fish and motor vans ... ... ... ... | 31 | ... | 31 |
| Bogie tank wagons (in term of 4 Wheelers) ... ... | 294 | ... | 294 |

We recommend that no more carriages be imported from abroad. They should be built in the Railway Workshops on imported under-frames as was the practice before Partition. Also as many wagons as possible should be built in the Railway Workshops which should be expanded for the purpose. The allocation of 312 million rupees which we have made in the Plan will suffice for the rehabilitation of the rolling stock. As far as a judgement can be made about the future, this would enable the Railways to cope efficiently with all traffic requirements during the Plan period.

**Bridges**

21. A sum of 43 million rupees will be needed during the Plan period on railway bridge works ; the main items are Lansdowne Bridge at Sukkur, Sher Shah Bridge near Multan, and the Hardinge Bridge training works in East Pakistan.

### Structural and engineering works

22. We have provided in the Plan a sum of 56 million rupees for such items as expansion of Pahartali and Saidpur Workshops, signalling and interlocking gear, and staff quarters. We have also included 11 million rupees for the expansion and modernization of the N. W. Railway Workshops to enable them to increase the manufacture of rolling stock. The Workshops should be used to full capacity in order to provide employment and save foreign exchange. They might also render service to other government departments and perhaps also to the public.

### Remodelling of Karachi City and Landhi Stations

23. The Karachi City Station has only two platforms to accommodate all main line and suburban line trains. This causes congestion, delays and operational difficulties which will increase as with the progress of rehabilitation the main line operates at higher speeds. The traffic between Karachi and Landhi is heavy, and it will grow further with the development of residential and industrial areas of the town and suburbs. The existing turn-round arrangements at Landhi are not at all adequate, and it is necessary that that station should be remodelled as early as possible. We have made provision in the Plan for improving both stations.

### Other development

24. We have included in the Plan a provision of 18 million rupees for completing the conversion of Jacobabad-Kashmor line from narrow to broad gauge : this is more economical than the alternative of purchasing narrow gauge stock for replacement.

### Future transport requirements

25. In general road transport should be preferred at any rate initially, when traffic density is low, for serving newly developing areas, because it will cost less in capital outlay and particularly in foreign exchange. New industries will often need rail sidings, some of which may be lengthy. We have not been able to make any reliable estimate of this expenditure, but it should not be large if the usual practice of using second-hand rails and sleepers is followed.

26. As a result of industrial development, colonisation of new areas and the general increase in production and trade, additional transport requirements will arise. So far as we are able to judge, with the rehabilitation of track and rolling stock proposed, making possible higher efficiency in operation, all foreseeable requirements will be met adequately during the Plan period. The railway authorities have not, however, been able to make a full survey of traffic prospects, but intend to do so shortly. We strongly endorse this intention. Such a detailed investigation, kept under continuous review and regularly brought up-to-date is the only sound basis for determining what railway development should be undertaken.

### Indigenous coal

27. We note with satisfaction that recently the railways have shown interest in the development of Pakistan coal for use in their locomotives, and are proposing to lease and themselves operate mines which will yield coal suitable for use in locomotives and exploit them under their own control. This would save them middlemen's profits and enable them to use the latest equipment and trained staff, which should reduce costs. We have made no provision in the railway plan for the purpose, but there is adequate provision for the development of coal mining under Fuels and Minerals. The railways might undertake this development with benefit both to their own enterprises and to the country as a whole : exploitation direct by large consumers offers one of the best prospects for rapid and economical development of the country's coal resources.

### Rates and commercial salesmanship

28. An imaginative and aggressive policy of commercial salesmanship reflected in the general rates structure as well as special rates to meet specific cases is one of the important elements of railways requirement. In 1952 Pakistan Railways had an inquiry made into their rates policy and structure conducted by a Past Member of the pre-partition Indian Railway Board. He made recommendations for rationalising the rates structure nearly all of which have been accepted and put into force. On the basic principle which governs the Railway rates policy he wrote :

> " It is not possible to determine what is the exact cost of transporting a particular article. Costs are incurred for traffic as a whole and not separately for different items of traffic."

* * * * * * * *

> " The normal railway practice is to charge according to what the traffic can bear subject to some degree of relationship with the costs of transportation. According to this principle, there are upper and lower limits, charges being levied according to the estimated costs of services. Broadly considered, however, on the principle of equality of sacrifice by the payer, well-to-do passengers, valuable freight traffic and traffic having the geographical advantage of nearby markets contribute from their abundance while the poorer class of passengers and articles of little value and those that have to find their markets at considerable distances are charged on a lower basis. This method of differential charging is not peculiar to Railways. It is applied in such matters, as taxation by local bodies and by Government, both Provincial and Central. This principle is in the interest of low grade traffic which could not have otherwise moved. It is also in the interest of high grade traffic which would otherwise have had to bear the entire burden of general expenses. It will be recognised therefore that the principle is not one of extortion but of alleviation, not of exploitation but of relief. "

29. This report did not endorse the demand sometimes made for special discrimination in railway freight rates to encourage the development of one industry or another, which he considered would be in the nature of a subvention, if government assistance were appropriate it should he argued, be given directly so that its amount might be regulated in relation to changes in the need for it.

30. These views were accepted by the Government. We think that the matter needs to be pursued further. The maximum and minimum may be in need of review and revision because of changes in the price level, and the system, as well as the level of charges may have to be adjusted from time to time in the cause of incentives and disincentives needed for economic development. The railways are basically and in fact commercial undertakings but in their own interest they should follow an imaginative policy of encouraging and supporting development which taken as a whole and in the long run is a guarantee of their prosperity. A commercial concern far more than a Government department is expected to seize opportunities for initiative to promote business, by increased scales either in existing markets or by developing new markets. A commercial undertaking does not wait for the development of State policies, which are usually slow to form and apply ; it takes advantage of the prevailing conditions and existing state policies and takes such action as appears likely to advance its own interests. We believe that the railways will get the fullest share in the prosperity of the country from development if they themselves make their best contribution to it.

31. We suggest that the railways should have a well organised marketing research staff as a part of their commercial department. Such staff is needed at the Centre also to make a continuous study of the developments that are taking place in the country, to seek

opportunities of encouraging the development of new traffic, in many cases by offering surplus capacity at lower rates, for the promotion of traffic. In our view imports of capital goods and raw materials will continue at a high level for many years. This calls for study and offers possibilities of low rates to take advantage of empty haulage for some commodities, the movement of which will be beneficial to the country. This would act as an encouragement to exports as well to internal traffic. A large development programme pursued year after year must create an increasing demand for carriage. We suggest that the commercial policies of the railways should be examined with the assistance of one or more experts well versed in modern commercial salesmanship of rail transport in the circumstances of a rapidly developing economy. The experience acquired in the pre-partition era is not fully applicable in the circumstances of the country, and has to be supplemented and invigorated.

32. While emphasizing the need for commercial research we would also invite attention to the need for research in general which seems to be lacking on the railways : they cannot continue to depend on the results of researches carried out in other countries : this in our view is a matter of very great importance deserving special attention.

### Inter-Wing traffic

33. The Economic Appraisal and Development Enquiry Committee had recommended the provision of arrangements for direct booking of goods between East and West Pakistan. We regret to see that no progress has been made to provide this service, which is essential for the development of traffic between the two Wings. We recognise that procedural and operational problems present serious difficulties, but we decline to accept that they are wholly beyond the organisational capacity of the large railway, shipping and banking concerns. We suggest that the matter be re-examined, if necessary by a special committee under the guidance of the Government. Arrangements for direct booking between the two Wings must be treated as a special item on the programme for imparting reality to the economic unity of the country.

### Management of Railways

34. It has been recognised by the Government that departmental agencies are in general unsuitable for the management of industrial enterprises. They have therefore created the Pakistan Industrial Development Corporation for building and operating industries which they wish to see developed. We see no reason why the principle of using semi-autonomous public bodies for management should not be extended to the railway ; several countries have changed over in recent years from direct State management of railways or from private ownership to management by public corporations. To provide efficient transport fully responsive to the needs of a rapidly developing country it is necessary that the railways should be operated as a commercial undertaking free from departmental and political interference. The Government would provide the capital funds and retain the power to lay down policies and programmes in the national interest, to require reviews and special investigations, and to make or approve key appointments, but subject to these controls, the railways should be allowed full autonomy. The transfer of Railways to the Provincial Governments is envisaged under the constitution, but this does not affect the principle underlying our proposals about the form of their management.

### Training

35. We have been struck by the fact that the majority of accidents are due to failure of the staff to observe instructions perhaps largely attributable to their ignorance of the rules. We also feel that there is need for reviewing and strengthening the arrangements for ensuring an uninterrupted supply of trained men in vairous ranks. No risks should be

run in this matter when the maintenance and operation of assets worth more than 1500 million rupees and the efficient functioning of main transport arteries are in question. It is generally thought that the quality of education in our educational institutions has suffered in recent years. If young men recruited by the railways have to be given longer-term training to make up for deficiency of general education prior to their joining the railways, the extra cost should not stand in the way : additional expenditure incurred for this purpose will pay handsome dividends and should be allowed freely. Training should be given the highest importance in all cases and no reasonable effort or expense should be considered excessive.

36. The railways are a valuable asset and their efficiency is an essential factor in the functioning of the country's economy. In studying their problems, we have been led to feel that their need for technical aid is not sufficiently appreciated. The world is moving fast ; knowledge is growing and expanding : research is continuously bringing to light more efficient and economical ways of doing things and new ways of approach to problems. We have referred to the problems of rates but problems abound in every branch of railway work as in the working of other technical, economic and social institutions and undertaking. We are confident that the railways will gain in knowledge, economy and efficiency by utilizing the knowledge of more advanced countries in the management of their great and vital enterprise.

37. Table 1 summarises the provisions we have made in the Plan for Railways. The estimated cost of increasing coal output, including the possible coal production programme of the railways, is covered by the development schemes proposed in the Chapter on Fuels and Minerals.

### TABLE 1

*Expenditure on Railways Development*, 1955—60

| | (Million rupees) |
|---|---|
| Track ... ... ... ... ... ... ... ... | 220 |
| Rolling Stock ... ... ... ... ... ... ... ... | 312 |
| Plant & Machinery ... ... ... ... ... ... ... | 18 |
| Structural and Engineering Works ... ... ... ... ... ... | 56 |
| Bridges ... ... ... ... ... ... ... ... | 43 |
| Expansion of N.W. Railway Workshops ... ... ... ... ... | 11 |
| Remodelling of Karachi & Landhi Stations ... ... ... ... ... | 4 |
| Conversion of Jacobabad Kashmor Railway from Narrow Gauge to Broad Gauge and a few small schemes ... ... ... ... ... ... ... | 19 |
| Total ... | 683 |

## PORTS

38. Adequate and efficient Port capacity is particularly important in view of the substantial export trade, the continuing need for imports and the fact that a substantial proportion of internal trade has to flow through ports on its way between the two Wings. In

West Pakistan the major need is for rehabilitation and improvement of a basically adequate port at Karachi. In East Pakistan the expansion of Chittagong port must be completed, and the anchorage at Mangla fully established.

39. Before partition, Karachi was largely an export port for a hinterland spread well into India, across what is now the Pakistan-India frontier. With the creation of Pakistan, the balance of traffic has changed, until 75 per cent of the total is incoming, and only 25 per cent outgoing. This trend is unlikely to change much in the near future. The traffic moving through the port has increased substantially since partition as shown in table 2 below :

### TABLE 2

*Traffic through the Port of Karachi*, 1948—55

| Year (April March) | Inward | Outward | Total |
|---|---|---|---|
| | | (Thousand tons) | |
| 1948-49 | 1,603 | 940 | 2,543 |
| 1949-50 | 1,916 | 924 | 2,841 |
| 1950-51 | 2,302 | 1,172 | 3,474 |
| 1951-52 | 2,688 | 1,076 | 3,764 |
| 1952-53 | 3,017 | 897 | 3,914 |
| 1953-54 | 2,664 | 895 | 3,559 |
| 1954-55 | 2,157 | 915 | 3,072 |

40. Karachi port, with a comparatively new West Wharf of four berths, a longer and older East Wharf of eighteen berths, moorings, lighterage piers, and berths, shore and floating cranes in large numbers and a wide range of other equipment, can handle without strain at least five million tons of traffic in a year. The thirteen oldest berths of the East Wharf are undergoing reconstruction, to be completed in five or six years. A shipbuilding and repairing yard, with a drydock is also being constructed at Karachi by the Pakistan Industrial Development Corporation, as detailed in the Chapter on Industry.

41. Chittagong port is situated on the right bank of the Karnafuli river 10 miles from its mouth in the Bay of Bengal. The river is practicallly untrained and the port suffers from lack of sufficient draught along its main jetties. There are also bars at the mouth of the river and inside the harbour, which restrict movement of vessels. Surveys and studies are in progress to determine the measure required to train the river channel so as to make the port accessible to vessels at all tides. Dredging will always be necessary to maintain draught across the bars, in the river channel, and alongside the berths. Chittagong is principally a railway port, but also a lighterage port for transhipment between ocean and inland water transport. The latter function is limited. Forty miles of open sea presenting seasonal navigation difficulties has to be crossed by inland waterways craft using the port. At partition, Chittagong had only 4 old berths, handling no more than half

a million tons of cargo. Work was started immediately to increase port capacity by installing temporary jetties. Harbour installations and ancillary works now almost completed, at a cost of over 100 million rupees will raise the capacity of the port to more than 3 million tons a year. Table 3 shows the growth of traffic through Chittagong in the past decade :

### TABLE 3

*Traffic through Port of Chittagong*, 1946—55.

| Year (April-March) | Thousand tons | | |
|---|---|---|---|
| | Inward | Outward | Total |
| 1946-47 | 87 | 156 | 243 |
| 1947-48 | 198 | 124 | 322 |
| 1948-49 | 413 | 252 | 665 |
| 1949-50 | 710 | 295 | 1,005 |
| 1950-51 | 1,207 | 423 | 1,630 |
| 1951-52 | 1,321 | 400 | 1,721 |
| 1952-53 | 1,054 | 540 | 1,594 |
| 1953-54 | 1,031 | 510 | 1,541 |
| 1954-55 | 902 | 490 | 1,392 |

42. The administration of the port of Chittagong is divided into two parts. All work on the land-side, like port construction and management, is controlled by the Port General Manager, who is responsible to the Raiwaly Division. All work on the river-side, such as piloting of ships, dredging, and training of the river, is under the Port Commissioners, who are a semi-autonomous body responsible to the Communications and Transport Division of the Ministry of Communications. We suggest that the port should be managed by only one authority. Because it serves not only rail but also inland water transport and may serve road transport in the future, this authority should preferably be separate from the railways. We recommend that a Chittagong Port Trust should be established along the lines of the Karachi Port Trust.

43. The Port of Khulna—Mangla, 60 miles upstream from the mouth of the river Passur, is East Pakistan's second port for ocean-going vessels. It is at present an anchorage and serves its hinter-land mainly by inland water transport. Rail transport is available at Khulna, 25 miles from the anchorage, and regular lighterage services are maintained between Khulna and the anchorage at Mangla. All shore installations are at Khulna and consist of pontoon landing stages, storage spaces, and warehouses with road and rail access. The present anchorage at Mangla was recently moved from Chalna, 8 miles

upstream. The new site has the advantage of a straight river stretch with a wide and deep channel. The traffic in recent years has been over 400,000 tons, of which one quarter was imports and three quarters exports. The figures are as shown in Table 4.

TABLE 4

*Traffic through Port of Khulna—Mangla*, 1951-55.

| Year (July-June) | Inward | Outward | Total |
|---|---|---|---|
| | | (Thousand tons) | |
| 1951-52 ... ... ... ... ... ... ... | 192 | 210 | 402 |
| 1952-53 ... ... ... ... ... ... ... | 94 | 335 | 429 |
| 1953-54 ... ... ... ... ... ... ... | 123 | 313 | 436 |
| 1954-55 ... ... ... ... ... ... ... | 88 | 391 | 479 |

44. About Rs. 8 millions worth of work has already been completed on the Mangla anchorage, and on shore installations and floating equipment at Khulna. A tentative development plan has been outlined for the construction of a permanent wharf on steel piles at the site of the old military wharf which had fallen into decay, including a transit and customs shed, railway sidings and roadways. Although extensive shore installations are not needed, because Khulna twentyfive miles away, will continue to be used as the inland port, minor works will be required during the Plan period, including accommodation for pilot at Mangla, provision for which has been made in the Plan. Funds should be sanctioned after a properly co-ordinated scheme has been prepared, taking into account the best use that can be made of existing equipment.

45. The provisions we have suggested for port development in the Plan are :

| | (Million rupees) |
|---|---|
| Karachi Port ... ... ... ... ... ... ... ... ... | 84 |
| Chittagong Port ... ... ... ... ... ... ... ... | 20 |
| Mangla Anchorage ... ... ... ... ... ... ... ... | 12.5 |
| Total ... | 116.5 |

## SHIPPING

46. Ocean shipping is an important factor in the country's economic life. Pakistan's foreign trade totals about 5 million tons yearly, virtually all of which is now carried in foreign-owned ships. The annual freight bill may be as such as 400 to 500 million rupees, practically all payable in foreign exchange. Coastal traffic between East and West Pakistan totals over a million tons annually ; this traffic is nearly all carried in Pakistani ships.

47. After studying the potential costs and returns from operating shipping services, we believe that the objective should be a merchant fleet adequate not only to meet the requirements of East-West Pakistan coastal traffic, but also to participate in international traffic in some relation to the country's share in overseas trade. Investment in merchant ships can yield an important gain to the national income and net savings in foreign exchange, even taking into account the sizeable proportion of operating costs which would have to be paid in foreign exchange.

48. After independence the merchant fleet grew rapidly from 2000 to 180,000 deadweight tons in 1955, but the ships acquired were assorted craft mostly over 30 years old. The recognised economic life of a normal sea-going vessel is 25 years ; there are now only 6 Pakistani ships which can be regarded as modern and economical, and even their remaining economic life does not exceed 10 years. Most of the ships appear to have been bought in an effort to acquire shipping capacity cheaply, at the cost of unsuitability for the specific trade, heavy fuel consumption, and high maintenance, repairs and operating expenditure.

49. This uneconomic fleet mostly long overdue for scrapping, has been very costly in foreign exchange for repairs, fuel, and insurance both of ships and cargo. Adequate training arrangements for officers, engineers and specialists have not existed. The ships have been shifted from coastal routes to foreign tramping service and *vice-versa* to take advantage of any high freight rates irrespective of national requirements. In times of trade recession the coastal service has been overcrowded resulting in unprofitable operation, port congestion, and various malpractices. The operations of the merchant fleet have been highly un-economic, have provided poor coastal services, at high freight rates, and have given rise to commodity shortages in some parts of the country.

50. The country's shipping industry requires a thorough re-organisation before it can undertake regular services efficiently at competitive freight rates. The Government have been trying unsuccessfully to stimulate the shipping companies to raise their operating efficiency. The Economic Appraisal and Development Enquiry Committee made a series of recommendations, including the organisation of a coastal Conference and the formation of a Shipping Corporation for participation in international traffic. Neither of these aims has so far been achieved, apparently because the companies have been unable to find any basis for co-operation. Delay in bringing about the re-organization of the shipping industry is a source of frustration and recurring losses to the country. It is in our view necessary for the Government to take the essential steps to achieve the scrapping of obsolete and uneconomic ships, the provision of new tonnage specially designed for the various trades, the re-organisation of coastal shipping services, and the extension of the Pakistani merchant fleet to cater both for foreign liner routes and foreign tramping services, in order that more of the country's overseas trade can be handled by national tonnage, and the cost in foreign exchange on sea freights reduced.

51. The age and condition of the present merchant ships suggest that about 20,000 tons should be scrapped annually. Few, if any, of the present Pakistani shipping companies appear to have financial resources to purchase new and modern economic ships, and the industry has asked that the Government should provide about 85 per cent of the cost, as a loan, carrying a low interest rate, to enable it to replace the old ships. It is estimated that the cost of replacing the existing cargo fleet by new modern ships would be about 140 million rupees, which is wholly beyond the resources of private companies.

52. The number of cargo ships needed to handle the coastal traffic and to handle about 10 per cent of the country's international trade are estimated as follows :

(Number of ships)

| | Coastal trade | International trade |
|---|---|---|
| Total fleet as at present ... ... ... ... ... ... | 20 | ... |
| Transfer from coastal service, ships fit for international trade ... ... | —6 | +6 |
| | 14 | 6 |
| Old ships which should be scrapped by 1960 ... ... ... | 10 | ... |
| Balance ... | 4 | 6 |
| Total number of ships required in 1960 ... ... ... ... | 10 | 11 |
| Additional new ships required by 1960 ... ... ... ... | 6 | 5 |
| Total ... | 11 ships | |

53. The cost of ships for international traffic would be about 10 million rupees each, and for coastal cargo ships about 8 million rupees each. Because of these large costs, we believe the programme should be spread over a longer period, and the best of the old ships kept patched-up to last a little longer. We have tentatively provided for a Government contribution of 60 million rupees in the plan. Further expenditures would be necessary later to complete the replacement of the present obsolete and overage ships, and if the polices and programmes we recommend are successfully carried out, to augment the total fleet. We have considered the possibility of purchasing second hand ships to reduce the initial investment, but do not recommend this : because of the world shortage of modern tonnage it would be very difficult to secure worthwhile second-hand ships, and the expedient of buying over-age ships should in no circumstances be repeated. Ships built specially to suit the country's needs will be much more economical and efficient in the long run.

54. The need to provide economical and efficient services both for coastal and international routes is pressing. With the increasing speed of economic development the demands of traffic are likely to increase and our expenditure of foreign exchange on freight to rise. We are already in need of additional service, such as some refrigerated cargo space on the coastwise route. Private enterprise has had an extended opportunity to reorganise itself in order to render efficient service. The conditions have deteriorated instead of improving which is attributable only partly to a lack of proper control and guidance by the government, and does not absolve private enterprise completely from its responsibility. In principle we do not favour public operation where private enterprise can provide the service required efficiently and on an economical basis. In shipping, however, the Government must intervene effectively if the country is to be assured of a reasonably modern and efficient merchant fleet of its own in any foreseeable future : delay will add to the prevailing feeling of frustration and undermine general confidence in the country's ability to organise essential services. Above all it would seriously hamper the government in their policy to develop and operate one single economy for East and West Pakistan—to impart reality to the economic unity of the country, shipping services between the two Wings have to be efficient, regular, frequent and cheap. Considerations of cost are always important but they should not be given overriding importance in this matter so vital to the nuity of the country.

55. Private enterprise is ill adapted for this essential national task. We recommend that a National Shipping Corporation should be formed to participate in both coastal and international routes. The following principles should be observed :

(*a*) Existing companies should be invited to participate by contributing cash or ships at a fair valuation.

(*b*) The Corporation should be given sufficient independent authority to manage its business operations successfully, subject to the control of general policy by the Government primarily to safeguard national interests.

(*c*) The Corporation should be managed by experienced professionally-trained personnel ; some senior posts will have to be filled in the initial years by recruiting foreign experts.

(*d*) The Corporation should initiate a programme of training to develop cadres of trained Pakistanis.

(*e*) The Corporation should be advised by a first-class firm of ship architects and engineers in designing and purchasing vessels.

56. We consider that a replacement schedule should be prepared for the existing ships based on their age and condition. Ships which become due for replacement under such schedule should not be allowed to enter international trade because of the danger of costly breakdown abroad. Private companies able to replace their ships with new tonnage should be assisted as far as possible in this country or allowed to spend foreign exchange as necessary abroad, provided the new ships conformed to some standardised plan to fit their specific trade. We contemplate an eventual expansion of the country's fleet to 50 or more ships, to take a reasonable share of the country's foreign trade over world routes. For the present, however, the problem is one of rehabilitation and reorganisation, not of expansion.

57. The programme we outline is a difficult and ambitious one, because it envisages entering successfully a highly competitive international trade, and meeting the standards of efficiency and service maintained by firms of great experience and long tradition. This will require energey, drive, and imagination and men with these qualities must be found for this enterprise. We believe action on the lines we have suggested will provide the country with an efficient, economical, and productive merchant fleet.

58. There is need to provide an economical and efficient passenger service, between Karachi and Chittagong, and suitable shipping for Haj Pilgrims. We believe that the provision of deck and some cabin accommodation between Karachi and Chittagong on coastwise cargo ships built to passenger ship regulations will secure a more frequent service at perhaps only half the present cost. The service will take two or three days longer, but for those who use the sea route time is not as important as the cost and frequency of service. The situation will change when the railway route across India becomes available as a more normal means of travel between East and West Pakistan. It is possible that all cargo ships may not be able to provide a regular scheduled passenger service and it may in addition be found necessary to have one or two passenger ships, one or both of which could be diverted to Haj traffic when required. The existing ships used by Haj Pilgrims are obsolete but, as the whole character of the present Haj route will most probably be changed by the construction of the Dharan-Riyadh railway link, we think further provision of ships for this traffic should be deferred.

## INLAND WATER TRANSPORT

59. Waterways provided by nature or constructed by man for this or other purposes offer the cheapest form of inland transport. In East Pakistan inland waterways are the principal means of transport and need considerable development; in West Pakistan possibilities of the development of water transport are limited.

60. East Pakistan is an area of streams and rivers including the Ganges, the Brahamputra and the Megna which are amongst the largest rivers in the world. There are about 4,000 miles of potentially navigable waterways which have, however, been reduced to about 2,500 miles due to silting and shoaling etc. The waterways play a very important role in the economy of the Province. Over one thousand self-propelled and a very much larger number of other craft ply on them. Water transport accounts for about three-fourths of the total traffic of the Province. About one-quarter of the traffic is carried by the railways and a negligible amount by roads. Amongst the big carriers, the Joint Steamer Companies account for the major portion of the cargo handled by mechanically-propelled craft. The greatest amount of cargo is, however, carried by hand-operated country craft. The Chalna-Mangla anchorage is dependent almost entirely on inland water transport, which also carries substantial amount of cargo to Chittagong port.

61. During the flood season the navigable waterways are extended to about 4,000 miles and afford the only means of inter-communication between the thousands of villages situated near the banks of rivers, while the five principal inland ports of Narayanganj, Chandpur, Barisal, Khulna and Golando, serve as the chief distribution centres of trade. The largest, Narayanganj, is the principal centre for the collection and bailing of jute for export. Because the total length of the railway lines in the province is only about 1,700 miles, thousands of villages are far away from the rail-head and land traffic is often dislocated during monsoons. Inland water transport becomes the real life—life of the province during the rainy season.

62. The efficient operation of inland water transport is dependent on the provision of a number of services. These include river surveys, the provision of navigational aids, maintenance of water channels through dredging and river training, provision of pilotage and salvage facilities, enforcement of navigation rules, survey of vessels and country craft, maintenance of inland ports and the provision of terminal facilities for passengers and for the handling and storage of cargo. All these services are closely inter-related and can be provided efficiently if they are co-ordinated by a single controlling authority. These various services are at present performed by different independent agencies without any unified control. For example, the Joint Steamer Companies do some of their own dredging and provide some buoys and other navigational aids. The Irrigation Department of the East Pakistan Government is also responsible for dredging and the Central Engineering Authority for the provision of buoys and navigational aids. Laws relating to inland water transport are administered by the Transport Department of the East Pakistan Government, District Magistrates, and to some extent by the Registrar of Inland Shipping. Lack of proper co-ordination and inefficient preformance of some of the essential services makes inland water transport less efficient and more costly than it need be. The clarification of overlapping responsibilities and the unification of some of them in a single body are essential for the development of inland water transport.

63. The concentration and clarification of authority is particularly important in respect of the waterways. Because these are used by a very large number of operators, it is impossible to leave their upkeep to any one of them. Provision for navigational aids

in the channels, river surveys, communications, and dredging are functions which should be performed by an agency which can assure that the interests of all waterways users are safeguarded.

### An Inland Waterways Board

64. The first essential need for the development of inland water transport in East Pakistan is the establishment of a single statutory authority which should be responsible for all waterways and river conservancy services, for the provision and improvement of inland ports, terminal facilities and storage capacity, and for the supervision of inland water transport operations, including the registration of vessels and the levy of port dues and other charges. The Government have appointed a committee to consider the problem of establishing an Inland Waterways Board. Pending the report of the committee we do not want to make detailed proposals on the organisation of the proposed Waterways Board, except that it should be a technical and administrative body. We have made provision in the Plan for the development and improvement of navigation channels, buoyage and lighting facilities, inland ports, administrative buildings, equipment, inspection launches, ancillary craft, and a radio telephone network. All these would fall within the province of the proposed Board.

### Inland water transport operations

65. There are four distinct groups of inland water transport operators as follows :—

(*a*) The Joint Steamer Companies, which operate regular mail, passengers and cargo services on all routes, with a fleet of about 500 craft of all types, as well as several hundred " flats " used as landing-stages and transit sheds.

(*b*) The larger Pakistani operators and government-owned East Bengal Railway flotilla, carrying mainly jute.

(*c*) A number of small companies operating certain cargo and passenger services with smaller craft and motor launches for short-distance traffic.

(*d*) Hundreds of thousands of small craft, country boats, owner-operated and propelled by sail or man power.

Although the last category carries the bulk of the traffic, estimated at 75 to 90 per cent of the total, the ships of the first category provide essential services, and carry the most important classes of commercial traffic, mails, and passengers. The Joint Steamer Companies are registered in London, but their business is managed by agency companies registered in Pakistan. The companies are reported to have operated since partition at a considerable loss ; their results have started improving only recently. Their losses are said to be due principally to the system of equalised coal prices, which increase their coal bill consideraly above what it would have cost them to buy abroad. The companies would prefer to buy their own coal in India, but any relief given in this way would be at the cost of other users of coal, and we do not recommend it. We recognise, however, that they are rendering a useful service by maintaining transport services which are essential to the economy of East Pakistan. They are in need of a programme of renewal and rehabilitation. The smaller Pakistani companies, about half a dozen in number, also labour under difficulties similar to those of the Joint Steamer Companies. The East Pakistan Government has initiated an enquiry into the problems of Pakistani companies as well as Joint Steamer Companies. The question of the form and size of the assistance that should be given by the Government to the various private operators can be considered after the findings of this enquiry become available.

66. The bulk of the inland traffic is carried in country boats of shallow draft and light structure with centuries-old tradition of local builders' skill and ingenuity behind them. These are, however, made of poor material, and have a short life. They are not suitable for mechanised towage.

### Development programme

67. The development and maintenance of waterways is the most economical means for the provision of transport in East Pakistan. The cost of dredging and maintaining waterways which have silted up and are, therefore, available for water transport only during the rainy season, will be very small compared with building and maintaining either roads or railways of equal mileage. These waterways will be available for use by self-propelled craft as well by country craft operated by land. They will provide employment opportunities to large numbers of people who are either unemployed or under-employed. The farmers will be able to carry their produce to the market in country craft operted by themselves and thus get better value for the produce. These waterways will connect many parts of the interior with the rest of the province and can thus be an effective means for the commercialization of agriculture and the development of trade. They will also improve drainage and help in reducing the intensity of floods.

68. We have, therefore, given very high priority for the improvement of waterways and have provided Rs. 25 million for the dredging of navigational channels. In addition over Rs. 100 million have been provided in the Plan for drainage and flood control in East Pakistan which will also make a contribution to improved navigation. The distance for water transport between Dacca and Chalna will be reduced to 150 miles compared with the present distance of 250 miles during fair weather and 200 miles during the monsoon by the resuscitation of the Bhil route between Dacca and Chalna. The mileage of water channels fit for navigation all the year round will be substantially increased. Additional work can be carried out at a later stage if found desirable and feasilble by drawing on the Reserve provided in the Plan for East Pakistan. The limiting factor will not be finance but the speed with which the dredging operations can be carried out.

69. The crux of the problem of maintaining the navigable channels lies in the full and effective use of available dredging capacity in the Province. We understand that 20 dredgers of various sizes and 16 midget dredgers, recently purchased by the Government of East Pakistan, have not been effectively utilised because of lack of trained technical personnel and funds for their operation. A prerequisite for the efficient operation of the dredging fleet is the creation of a marine organisation suitably manned by technical, dock, and engine-room personnel, who should maintain a full record of performance and costs for each type of dredging unit. This organisation should be under the control of the proposed Inland Waterways Board.

70. We have provided Rs. 10 million for buoyage, lighting and navigational aids to facilitate the maximum possible utilisation of the waterways by various types of operators. Rs. 6 million have been provided for the development of inland ports to provide terminal facilities for passengers and for handling and storage of cargo and other port facilities. A provision of Rs. 5 million has been made for inspection and ancillary craft, administrative buildings and a radio telephone network.

71. In view of the extreme importance of the development of inland water transport services in East Pakistan we have made a provision of Rs. 30 million for Government investment in this industry. The method to be used for this investment should be decided

after taking all relevant factors into consideration. The Government should undertake a survey of the fleet strength, the traffic capacity and the economics of inland water transport operations both for cargo and passenger services. The survey should also take stock of the existing Pakistani capital in this industry and the role to be assigned to existing operators. It would then be possible to arrive at the form in which this investment should be made in order to expand the water transport services, to increase the share of Pakistani capital in the expansion of this industry and to reduce transport costs. Encourgement of competition may be an effective means for the reduction of transport costs.

72. The craft design, hull form, motive power, and methods of towage are very important factors in the economical operation of any inland water transport flotilla. Present methods of towage are neither efficient nor economical. This was proved by progressive towing trials carried out by the Joint Steamer Companies in 1953, with the existing craft improvised for this purpose. The most important conclusion was that a substantial saving in fuel costs could be effected by adopting the methods of towage practised in Europe and U.S.A.

73. A team of inland water transport experts of Asia and the Far East, under the auspices of ECAFE, toured round the world in 1951 to study the latest technical developments in inland water transport. After the completion of the study tour the team greatly emphasised the importance of the design of the craft in securing economies in operation and recommended that pilot projects be established to determine the most economical types of crafts for different waterways. A pilot project was also recommended for East Pakistan. This project is estimated to cost Rs. 5 million. The development of economic designs of craft for inland water transport in East Pakistan is in our view sufficiently important to justify this expenditure. We have, therefore, included this project in the development programme and have made the necessary financial provision for it.

74. Thousands of country craft ply throughout the inland water transport system of East Pakistan. These boats are made locally, all their designs have not changed for centuries. We think it essential that these country boats should be built on modern lines to stand the towage and weather stresses. The boat owners are usually too poor to be able to experiment on various designs to improve their craft. A pilot project is in our view desirable ; we have made a provision in the Plan of Rs. 2 million for work on the manufacture and mechanisation of country craft of a design most suitable for the inland water transport system of East Pakistan. With encouragement from the proposed Inland Waterways Board, we believe such improved craft would become popular, particularly as feeder services to the main routes.

75. The implementation of the development programme in inland water transport will result in a substantial increase in the effective mileage of inland waterways. The distance between Dacca and Chalna, for water transport purposes, will be substantially reduced. The waterways will be provided with the necessary buoyage, lighting and navigational aids which will make for their more effective utilization. Inland ports will be developed and essential telecommunications services will be provided. The improvement of the waterways will increase the operational efficiency and the turn round of the existing craft. Economical designs for mehanically propelled craft and for small country craft would be developed to suit the East Pakistan waterways and the inland water transport tonnage will be greatly increased. In short the inland water transport system will be enabled to handle a very much larger volume of traffic than now and will partly make up for the deficiency in respect of other means of transport. Besides, a firm foundation will be laid for a much more rapid advance in the future.

76. The inland water transport development programme may be summarised as follows :—

| | | (Million rupees) |
|---|---|---|
| 1. | Dredging of navigational channels ... ... ... ... ... | 25 |
| 2. | Buoyage, lighting and other navigational aids ... ... ... ... | 10 |
| 3. | Development of inland ports ... ... ... ... ... ... | 6 |
| 4. | Inspection and ancillary craft, administrative buildings, and radio telephone net work | 5 |
| 5. | Public investment in inland water transport ... ... ... ... | 30 |
| 6. | Pilot project for new craft and towage methods ... ... ... ... | 5 |
| 7. | Pilot project for mechanizing and modernizing country craft ... ... | 2 |
| | Total ... | 83 |

## ROADS

77. The need for a well integrated and expanding road system was recognised during the war as part of post-war reconstruction plans. The Nagpur Plan of 1943 was drawn up on All-India basis to improve and expand the road system of this sub-continent. On partition the road system suffered some dislocation as a result of interruptions in arterial roads caused by the new boundaries.

A Road Conference was convened to make recommendations for re-ordering the system, for improving and expanding it, and for repairing the neglect from which several areas had suffered in the past. The Conference resulted in the following recommendations:—

(*i*) The constitution of a Central Road Fund from customs and excise duties.
(*ii*) The formation of a Transport Advisory Council.
(*iii*) The establishment of a semi-government organisation of highway engineers.

### Progress since independence

78. The road network in West Pakistan is relatively well-developed except in Baluchistan, Sind and the tribal States, by contrast, the road system in East Pakistan is more limited reflecting partly the geographical and climatic factors, partly the fact that inland waterways provide the chief means of transport in the Province, and partly the result of past neglect. Since independence 2,850 miles of high-type (surfaced) roads have been constructed in the country, bringing the total length of high-type roads to some 9,000 miles. But further development is urgently necessary especially to build roads in neglected areas, to improve village roads, and to complete the works in progress or on which progress has been interrupted after partial execution.

79. Road construction and maintenance are Provincial responsibilities, but the Central Government has a vital interest in road development because of its importance for the whole economy. The Central Road Fund, in existence since 1949, receives a share from the duties on motor spirit ; this share was increased from 2¼ annas per gallon to 5 annas per gallon in 1953. The total sum paid into the Central Road Fund up to the end of 1954-55 amounted to about 46 million rupees, out of which 39 millions had by 1955 been allocated to the Provinces. The total amount spent on construction and maintenance of roads during 1948—54 was about 350 million rupees so that the Central Road Fund contribution was a relatively small part.

**Development programme**

80. The maintenance of existing roads is not part of the development programme, but it requires some of the same scarce physical and financial resources as the building or improvement of roads—Engineers and other trained personnel, machinery, materials and the attention of a functioning organisation. We believe that maintenance should have a prior claim on these resources. It is obviously unwise and costly to devote resources to building or improving roads while existing ones are allowed to deteriorate or if there is no reasonable expectation that the new roads will be maintained properly. Funds that will be needed during the Plan period for maintaining the roads built or improved from the provisions in the Plan are included in the Plan. But after the Plan period they shall have to be financed from the ordinary budgets. We estimate that total annual maintenance expenditures will be about 20 million rupees in West and 10 million rupees in East Pakistan by the last year of the Plan period.

81. In the programme itself we have given high priority to the building of unmetalled roads linking villages together and connecting them with the main road system. These roads should be built mainly with local labour by local communities, under the Village AID programme or the programme for the local development outside Village AID areas. No specific provision has, therefore, been made for this type of road under " Transport ". The expenditures will in fact be made by the Government to assist local communities in building their own roads, especially in constructing bridges or culverts, which would often be beyond local resources alone. They will depend on the extent to which villages want to devote Village AID funds to roads. However, there are well over 10 million rupees available for assistance on village roads under the Village AID and local development programmes. We estimate very roughly that over 2,000 miles of such roads could be constructed with the help of these provisions.

82. Under the road programme we have given high priority also to the completion of roads, and to roads in under-developed areas. There is a considerable mileage, especially in East Pakistan, which is at various stages of construction. Failure to complete the work would lead to heavy losses, and past investments confer no benefits or can actually be lost through deterioration, unless the work is completed. There are other roads in both Provinces where individual stretches are incomplete or unmetalled. In all of these cases a relatively small investment to complete or to improve an inadequate stretch can often bring the whole road into full use ; this is particularly important for improving the main arterial roads. There are other areas relatively neglected in the past, where lack of transport facilities is an important chart to economic development. These areas should obviously have first attention in any road development programme.

83. Given these priorities, we have provided for a number of highways to open up the less-developed areas of West Pakistan—the Indus Valley Highway, up the West side of the Indus (Kotri-Peshawar *via* D. G. Khan, D. I. Khan, Bannu and Kohat), roads to open up the former Baluchistan areas (such as a fair-weather road from Karachi to Kalat and Quetta, and improvement of the Quetta-Ziarat-Loralai-Fort Munro and the Quetta-Fort Sandeman Roads), and roads to some areas previously neglected (such as Jhelum-Pind Dadan Khan-Malakwal-Gojra and Multan-Bahawalpur). In addition we have provided for substantial improvement of the main traffic artery of West Pakistan, the Karachi-Lahore-Peshawar-Landi Kotal road.

84. The road construction programme of East Pakistan is conditioned by the peculiar terrain of much of the Province : a very flat delta through which a large number of rivers, canals, and other water courses flow throughout the year. The flow of the rivers cannot be obstructed, without prejudicing the drainage of the Province, and increasing the dangers of

flood damage during the monsoon. This raises special issues for the siting and construction of road embankments, and for the speed and size of the programme. It also raises acute problems of road construction methods and designs suitable for a low-lying frequently flooded, tropical region.

85. In greater part of the Province, the water often offers a cheaper and more satisfactory means of transport. In the northern and hilly parts, however, water transport is of less importance and the special problems of drainage and flooding are less acute. It is also in this area that the needs of sugar mills for roads require special attention. Road development in these areas of East Pakistan is therefore relatively of greater importance than in the low-lying areas.

86. The Central Government have appointed an Enquiry Committee to investigate the problems of road construction in East Pakistan. Pending the report of this Committee, the programme included in the Plan must be considered tentative and subject to review. It provides, however, for the completion of roads previously begun, and would include such new connections as Dacca-Aricha, Gualundo-Rajbari-Faridpur-Magura, Jessore-Khulna-Bagherhat and Tongi-Tangail, as well as the improvement of the important Chittagong-Arakan, Meherpur-Kushtia, Chandpur-Comilla and Juri-Sheola roads.

87. This work will require a substantial allocation of resources, because roads are costly to build in East Pakistan. The programme, however, will be increased if found necessary and technically and administratively feasible on receiving the report of the Enquiry Committee.

88. In both Provinces the programme outlined provides for the construction or improvement of 3,780 miles of road, at a cost of 340 million rupees, as shown in Table 5. This work would be in addition to the village roads to be constructed under the Village AID and local development programme, those in newly-colonised areas to be built as part of the agriculture programme, and roads in urban areas included in the Housing and Settlements Programme.

### TABLE 5

| | Mileage | | | |
|---|---|---|---|---|
| | New construction | Improvement | Total | Amount (million Rs.) |
| East Pakistan ... ... ... ... | 495 | 205 | 700 | 165 |
| West Pakistan ... ... ... ... | 1300 | 1780 | 3080 | 175 |
| Total ... | 1795 | 1985 | 3780 | 340 |

89. It is proposed that the existing Road and Building Research Laboratory at Lahore which was intended for the former Punjab should be expanded to serve the whole of West Pakistan. Another road research laboratory will be built in East Pakistan, suitably equipped to carry on research in problems of soil, drainage, and flood control.

90. Some road-building machinery will have to be imported during the Plan period, but the amount should be kept to the minimum. It is expensive both initially and for operation in terms of foreign exchange ; it should not be imported to do work which could be done as well by plentiful local labour. Moreover, a considerable amount of machinery is already available in the country, and much of it is not fully used ; it should be employed to greater capacity before new machinery is imported. We have made a provision of about 4 million rupees for road machinery during the Plan period.

91. The estimated cost to the government of the road programme, including research facilities and new machinery, but excluding expenditures under Village AID, for colonisation projects, and for urban areas, is 340 million rupees during the Plan period.

## ROAD TRANSPORT

92. Since partition there has been an extremely rapid increase in the number of motor vehicles, as shown below :

TABLE 6

*Motor Vehicles in service* 1947—54

000 numbers

| 1947 | 1948 | 1949 | 1950 | 1951 | 1952 | 1953 | 1954 |
|---|---|---|---|---|---|---|---|
| 25 | 28 | 34 | 51 | 45 | 59 | 59 | 61 |

This increase of 144 p.c. has taken place inspite of restrictions on imports to economise foreign exchange, and signifies an increase in incomes and urbanisation. It has brought with it increased problems of traffic safety, control of routes and service and enhanced the importance of government policy on road transport.

93. Road Transport is generally the most efficient means of transport for local and short distance haulage, but is normally only ancillary to long-distance transport by rail or water in developed areas. It is usually best managed in decentralised units either in private ownership or under local public authorities. Public operation was started for road passenger transport in some part of the country five years ago for two main reasons : to ensure improved service to the public and to prevent wasteful competition between road and railway transport. Road Transport Boards were set up in various parts of West Pakistan, financed by the Central and Provincial Governments usually in a ratio of 25 and 75 per cent. The Central Government contribution was made through the Railways, which are represented on the Board for the co-ordination of rail and road transport. The total route mileage now covered by public road passenger transport in West Pakistan is about 13,000 served by 850 buses which cover about 24 million miles a year. The enterprise yields 5 to 27 per cent on capital investment in different parts of the Province.

94. The development of road transport under public ownership and management has many advantages. Reforms and improvements can be introduced at the will of the Government. Efficiency, regularity and punctuality are ensured. Less remunerative or financially unproductive services are not neglected. Some revenue is earned for the Government though both profits and Government revenue must tend to diminish as less profitable

services are taken up. Direct public control also ensures the needed measure of co-ordination between rail and road transport. These advantages must be weighed against the disadvantages. Public management tends towards centralisation which is not appropriate for road transport. The chief advantage of road transport lies in more personalised and rapid service from point to point. Centralised service loses some of the advantages which localised service affords and is more costly in terms of national resources. Public ownership employs capital resources in the public sector which can be better utilised for financing basic services. It is the declared policy of Government ordinarily not to extend the public sector to services which can be provided by private enterprise. We support this principle and have kept it in mind in formulating the Plan.

95. Private road transport services are usually inefficient and often accused of indifference to the comfort and convenience of the public. They are sometimes unreasonable in their charges and reluctant to abide by the law and rules applicable to them. Nationalisation offers an easy solution to these innumerable and seemingly insuperable problems. We think however that private transport if governed by appropriate laws and rules, if organised in large viable units and guided and regulated by a competent public agency can provide a more efficient and economical service. Eventually private services would present a much smaller problem to the Government than publicly owned and managed road transport services, operating throughout the length and breadth of a fast developing country. The Government might well operate a few services as a model and leave the others to private enterprise under a carefully planned system designed to ensure economy with efficiency.

96. As we have said before the number of vehicles has increased by 144 p.c. from 1948 to 1954. The increase would have been greater if the imports had been allowed more freely. The urban population is increasing as also the incomes accruing in urban areas. New roads are being built and more are needed and being demanded. The steady increase in economic activity will increase the demand for road transport. This means an increasing expenditure of foreign exchange both for initial purchases as well as operation and maintenance. The country must reckon on having to make an increasing provision of foreign exchange for road transport. Steps are therefore necessary to ensure all economies that can be made.

97. In a country in the early stage of the use of machinery maintenance and operation are apt to be inadequate and inefficient. Vehicles are kept in service for much shorter periods than in advanced countries. Their replacements involve a needlessly large drain on the resources of foreign exchange. These considerations raise the problems of improved arrangements for the training of drivers and mechanics, standardisation and dieselisation of vehicles, and the local manufacture of replacement parts. The object must be to keep the vehicles in service for the longest possible periods and to maintain them efficiently and operate them economically. By fixing the type of vehicles to be used, standardisation will simplify the problems of repair and reconditioning, making and stocking of spare parts, training of drivers and mechanics. Dieselisation will reduce the costs of operation. These problems have been under the consideration of the Ministry of Transport for some time and we trust that decisions will be made and put into effect soon.

### Development programme

98. We have provided in the Plan for the improvement only of the existing public-owned services by the replacement of their vehicles, the increase of services on present routes, the expansion of maintenance facilities and passenger amenities, and extension of services to certain routes unlikely to be served by private companies.

99. It is important that road transport should be organised in units capable of ensuring efficient and regular services and proper maintenance. Goods vehicles can be operated efficiently, even by a one-vehicle concern. Buses can, as a rule, only be operated efficiently

in fleets. Small private operators should be amalgamated into viable units. Even in the larger cities, it would be more efficient to have only a limited number of companies providing all the bus services. By standardisation on a few types of vehicles by better arrangements for repair and reconditioning, and by employing only skilled drivers and mechanics the unified companies could save foreign exchange both in the purchase of vehicles and the provision of spare parts. In the procurement of vehicles and engines, sufficient provision should be made for an initial supply of spare parts and for regular supplies in future years, as an essential aspect of sound maintenance without which road transport development will be impeded.

100. We have provided 25 million rupees for the development of public road transport services in the Plan ; in addition substantial funds will be invested by private concerns.

## CIVIL AVIATION

101. Regular and efficient air services are an essential part of a modern transport system. The development of Civil Aviation is particularly important for this country, as the only certain and rapid means for connecting the two Wings. Moreover, local air services in each Wing, and especially in East Pakistan, often provide the only rapid and reliable means for connecting important areas. Finally, Karachi has become a major international airport, one of the largest in Asia.

### Progress Since independence

102. At the partition, the country inherited only one major airport, very few trained personnel and only a small quantity of obsolescent equipment. No airline was based in the country. Orient Airways transferred its base from Calcutta to Karachi and developed most of the present air transport services in the country, partly with aircraft purchased with Government assistance. In 1955 Pakistan International Airlines Corporation was formed, as a semi-autonomous Public corporation. It had acquired three Super-Constellation aircraft to extend its operations to the international field and absorbed Orient Airways in 1955.

103. The Department of Civil Aviation has gradually built up a number of operational airports of which the most important, Karachi, is fully equipped to international standards and three others, Dacca, Lahore and Chittagong, have also reached the standard required for present operations, These improvements have involved substantial development of aeronautical communications services. A number of smaller airports have been opened. A fully equipped air training centre for air traffic controllers, communications personnel, radio technicians, and others has been established at Karachi. The country is not only self-sufficient in these training facilities but is now accepting foreign trainees. Three Flying Clubs at Karachi, Lahore and Dacca have the primary responsibility for the initial training of both commercial and private pilots.

### Civil aviation department

104. Although both Wings are fairly well provided with air ports and air strips, some improvement and development is required, particularly in communication and navigation facilities. Terminal facilities should provide a good standard of comfort, though improvements should not outrun actual needs. Inland airstrips require only a shelter for passengers,

and no more elaborate facilities should be provided at present. A large number of airstrips, legacies from war time operations, are available in East Pakistan and are suitable for inland local services ; one or two centres in that Province are without such airstrips and they should have strips built at a small cost by simple and light construction methods. Major work is required only at Walton airport, Lahore, where the runway must be improved to take heavier planes and the control tower given a view over the entire runway. In addition, most of the airports require some further development of communication services to bring them fully up to international standards. Over 30 million rupees have been provided in the Plan for airport development. Only half of this would be for public works at various airports, including Lahore, the remainder for communication and navigation equipment.

105. The national airline of Pakistan operates a number of international services to nearby countries, and one long-distance service, the Dacca-Karachi-Cairo-London run. During the Plan period there will probably be some further development of these international services. Of more importance to the country's development, however, will be the growth of internal services and local feeder lines in West Pakistan, and even more in East Pakistan. These feeder services should be of a simple type, operated from existing airports to local airstrips and back, or in a circuit, with light multi-engined aircraft carrying eight to twelve passengers, *plus* mail, newspapers and some freight. No ground facilities other than runways are required. Post Offices and newsagents can collect and deliver their consignments from and to the aircraft, and a local agent can issue tickets to passengers who have not previously booked. Some 5 to 8 light aircraft will be required for these feeder services during the Plan period.

106. In addition services between major cities in the country, and between Pakistan and India, need to be improved. This will require perhaps three new, medium-range aircraft to operate existing services more frequently and rapidly, and to serve additional routes. The expanded fleet, and the increasing demands of foreign airlines using Karachi make the establishment of a fully-equipped workshop a real necessity ; much foreign exchange will be saved if the aircraft do not have to go abroad for servicing and overhauling. Provision for this workshop and for training Pakistan International Airlines personnel has been made in the Plan.

107. The civil aviation programme is tentatively estimated to cost 78 million rupees in the Plan period, and comprises :

| | (Million rupees) |
|---|---|
| Aircraft and workshops ... ... ... ... ... ... | 31 |
| Aeronautical telecommunications ... ... ... ... ... ... | 14 |
| Improvement of airports ... ... ... ... ... ... ... | 18 |
| Training of personnel ... ... ... ... ... ... ... | 15 |
| Total ... | 78 |

Because civil aviation technique and equipment change rapidly, and the programme is moving forward quickly, these estimates would remain subject to more than usual adjustments.

## Transport development programme

108. The public development expenditure we have proposed for Transport in the Plan is summarised in Tables 7 and 8.

### TABLE 7

*Public development expenditure on transport services by sectors,*
1955—60

(Million rupees)

| | |
|---|---|
| Ports (excluding shipyards) ... ... ... ... ... ... ... | 116 |
| Shipping ... ... ... ... ... ... ... ... ... | 63 |
| Inland Water Transport ... ... ... ... ... ... ... | 83 |
| Railways ... ... ... ... ... ... ... ... ... | 683 |
| Roads ... ... ... ... ... ... ... ... ... | 338 |
| Road Transport ... ... ... ... ... ... ... ... | 25 |
| Civil Aviation ... ... ... ... ... ... ... ... | 78 |
| Total ... | 1386 |

### TABLE 8

*Public development expenditure on transport services by years,*
1955—60

(Million rupees)

| | 1955-56 | 1956-57 | 1957-58 | 1958-59 | 1959-60 | Total 1955-60 |
|---|---|---|---|---|---|---|
| Total expenditure ... | 232 | 299 | 305 | 273 | 277 | 1386 |

## Co-ordination of transport

109. Co-ordination of transport involves the co-operation of different branches in order to provide transport services at the least cost to the country as a whole. Co-operation need not be wholly voluntary, but may be self-inspired or secured by help from the Government. It has been a problem in almost every country in the world, not only since the development of new forms of transport, such as motor cars and aircraft, but even when older forms, like inland water, coastal shipping and rail transport operated side by side. No country has yet found a fully satisfactory solution although in many of them the problem is more acute than it is in Pakistan.

110. Complete nationalisation of transport is not a solution. It cannot for instance achieve the integration of a railway system, owning and operating its own track and vehicles with water transport using channels provided by nature or human authority and conducted by large numbers of operators. Nor is extensive Government control expedient, since each of the many users of the means of transport must retain the right to choose the medium which is to carry him or his goods. The transport industry must therefore be guided to co-operate, not have co-operation imposed. Co-operation must come from within that Industry by communication under a common organ, in which all the branches of transport take a part with such assistance and encouragement from the government as may be needed.

111. As noted above, the transport patterns of East and West Pakistan differ greatly. Therefore, co-operation between the various means of transport will be accomplished more readily if the responsibility rests with managements on the spot. In West Pakistan, the means to be covered are port, shipping, railways road and air transport ; in East Pakistan inland water transport has to be added to this list. The comparative importance of each branch and their interdependence obviously differ considerably between the two Wings of the country.

112. As a beginning, we recommend the establishment of a Transport Committee in each Wing under an independent Chairman, preferably a senior government official. The members of the committee should consist of representatives of all the interests concerned. The Committee would not have executive powers because it would not be a superior transport administration. It should meet at regular intervals, and in special session if necessary. It would endeavour to promote voluntary agreement between the members to co-operate in the measures the Committee resolved to be beneficial to transport services as a whole. The principle must be observed by all concerned that competition should continue between the various branches in the interest of improved efficiency, better service, and decreased cost. But competition should not be allowed to lead to the provision of uneconomic services or preferential treatment by one or other branch of transport, much less by a Government undertaking. To avoid such uneconomic competition the following subjects should be brought within the purview of the Transport Committee :

(*a*) Rates and fares structure
  (*i*) on competing routes
  (*ii*) on complementary feeder routes.
(*b*) Frequency and timing of services and connections.
(*c*) Through working, through booking, through bills of lading to the widest possible extent.
(*d*) Joint use of repair facilities and equipment, wherever feasible and economic.
(*e*) The use of containers in through traffic, especially in East Pakistan, and
(*f*) pooling certain equipment such as the railway flotilla, and the barges at Khulna/Mangla.

There are many other subjects, often of local importance, which are bound to appear. The problems will not be easily solved. A certain amount of prejudice and of self-interest will have to be overcome ; in some cases a solution will require legislation, or some other form of aid from the Government. On the whole, however, the machinery should be established to allow the partners in transport to work out their own problems.

113. A Transport Co-ordination Board has recently been established in East Pakistan; and the establishment of a Central Board of Transport for West Pakistan has been under consideration. A move towards implementing the policy of transport co-ordination has thus been made. Developments in the organisation and arrangements will be found necessary as experience is gained.

# CHAPTER 24

# COMMUNICATIONS

## POSTAL SERVICES

### Development since independence

1. The postal services of the country have three-quarters of a century's experience behind them, and are now well established, after a major readjustment at partition. Expansion is continuous: starting with 5,650 post offices at independence, the country now has nearly 8,000. All first-class mails and money orders between the two Wings are carried exclusively by air. A technical training programme for all categories of postal staff has been introduced, with Regional Training Centres at Karachi and Dacca and Sub-Regional Centres at many other important places. Special services have expanded considerably. The Savings system has expanded from 2,185 Savings Bank post offices with 773,999 accounts and 233 million rupees of deposits in 1948, to 3,555 Saving Bank Post Offices with 1,066,510 accounts and 338 million rupees of deposits in 1955. P.O. Savings Certificates at present amount to more than 17 million rupees. In the field of postal life insurance only 5,000 new policies were issued during the period 1947—53 ; after a recent reorganisation, 7,097 fresh policies were issued during one year, 1954-55. In addition to the usual services ancillary to postal business, the Post Office deals with the sale of anti-malaria medicines in rural areas.

2. Services are carried on in general post offices, branch and rural post offices and agencies, on the whole properly housed and equipped. The administrative headquarters in Karachi still occupy a number of temporary buildings. Regional headquarters are permanently housed. There are no development works of any magnitude in progress. The financial picture of the Post Office is shown in table 1.

TABLE 1

*Post Office revenue account* 1947—55

(Thousand Rupees)

| Year | Receipts | Expenditures | (+) (—) Surplus or loss |
|---|---|---|---|
| 1947-48 (7-1/2 months) | (1,00,26) | (1,42,05) | (—41,79) |
| 1948-49 | 2,27,47 | 2,70,01 | —42,54 |
| 1949-50 | 2,67,79 | 3,42,04 | —74,35 |
| 1950-51 | 3,04,58 | 3,37,65 | —33,07 |
| 1951-52 | 3,60,20 | 3,38,46 | +21,74 |
| 1952-53 | 4,17,90 | 3,69,38 | +48,42 |
| 1953-54 | 4,40,78 | 3,69,54 | +71,24 |
| 1954-55 | 3,38,61 | 3,91,74 | —53,13 |

(*Source* : Director General, Posts & Telegraphs).

As will be seen from the above statement, the post office has been running at a loss except in the years 1951-52, 1952-53, and 1953-54.

### Development Programme

3. At present, the first objective is to provide a post office for every village of 2,000 or more inhabitants. There are about 1,500 of such villages without service. A village qualifies for a post office if the annual deficit in operation is not expected to exceed Rs. 600. It must be expected that most, if not all, of the new village postal services will operate at a loss. Expansion must continue, but the loss might be reduced by establishing agencies rather than offices manned by postal staff, by limiting transactions at the less important offices to the sale of stamps and minor services only, by arranging for adjacent villages to share one agency, and by other devices. The question of extending postal services to villages with smaller population than 2,000 should be considered after completing the present programme.

4. Additional mechanical equipment is required by the Post Office. Although the use of motor cycles and scooters may be deemed a luxury, vans, light trucks, and lorries are required for transport of mails within the towns, to replace contractors so as to bring the services under better control. Service in many country towns is now provided in rented buildings, which are not suitable for the range of postal activities. These buildings should gradually be replaced by new and suitable accommodation constructed for the Post Office. In Karachi there is need for (*a*) appropriate postal headquarters, (*b*) a suitable General Post Office, (*c*) a modern sorting office. The headquarters could conveniently be accommodated in one building, with either the general post office or the sorting office. But in any case, we consider that the sorting office should have priority, because the present general post office will serve for many years if sorting is transferred elsewhere. The new headquarters should receive second consideration, and could be built over the new sorting office or over the general post office. A number of additional training centres, staff quarters, maintenance shops, stores and similar establishments are undoubtedly a necessity in a growing administration.

5. The Post Office development programme will mean increased recurrent expenses as well as capital expenditure : for the latter we have provided 17 million rupees in the Plan.

## TELECOMMUNICATIONS

### Development since independence

6. Telecommunications cover telegraph and telephone services by wire, cable and wireless, controlled by the Department of Posts and Telegraphs of the Ministry of Communications. Starting with severe handicaps, they have developed rapidly since partition. The increase in telephone service is indicated by the facts that the number of exchanges increased from 242 in 1947-48 to 439 in 1954-55 and the number of telephones installed from 15,283 to 37,076. Modern trunk exchanges have been opened at Dacca, Rawalpindi, Peshawar, Lahore, Rohri, and Hyderabad. The number of inland trunk calls has quadrupled, from 334,000 in 1947-48 to 1,362,000 in 1954-55. To meet the growing needs for telephone equipment a telephone factory has been established at Haripur, and the assembly of instruments has begun. Telegraph traffic has increased by about 60 per cent. since partition. Voice frequency telegraph channels to work teleprinters between East Pakistan and West Pakistan have been installed in addition to a single high-speed radio telegraph channel, and the number of radio telephone channels between the two Wings increased to three.

7. Office buildings for telecommunication installation and nearly 1,400 staff quarters have been built. Three telegraph store depots and a modern telegraph line store workshop, capable of meeting the entire requirements of Posts and Telegraphs Department for

line materials have been established. The technical training centre stationed at Lyallpur is being shifted to Haripur where the Central Telecommunication Training College will be situated. Three regional training centres are being established at Lahore, Karachi and Dacca.

8. The Telecommunication capital assets have increased from 36·5 million rupees at partition to more than 90 million rupees. The operating results since 1947 are shown in tables 2 and 3. The surpluses earned annually have been very considerable, and have served to cover annual deficits on the postal service.

### TABLE 2

*Telegraph system—operating results*
1948—55

(Thousand Rupees)

| Year | Receipts | Expenditures | Surplus or loss |
|---|---|---|---|
| 1948-49 | 86,59 | 64,10 | +22,49 |
| 1949-50 | 1,13,86 | 82,90 | +30,96 |
| 1950-51 | 1,18,27 | 93,34 | +24,93 |
| 1951-52 | 1,40,41 | 1,08,34 | +32,07 |
| 1952-53 | 1,19,25 | 1,03,84 | +15,41 |
| 1953-54 | 1,02,10 | 9,80,00 | +4,10 |
| 1954-55 | 1,22,09 | 1,27,29 | —5,20 |

### TABLE 3

*Telephones—operating results*
1947—55

(Thousand Rupees)

| Year | Receipts | Expenditures | Surplus |
|---|---|---|---|
| 1947-48 | 37,28 | 33,23 | 4,05 |
| 1948-49 | 1,20,92 | 71,34 | 49,58 |
| 1949-50 | 1,38,41 | 86,58 | 51,83 |
| 1950-51 | 1,79,39 | 1,02,16 | 77,23 |
| 1951-52 | 1,78,80 | 1,24,00 | 54,80 |
| 1952-53 | 2,09,35 | 1,11,49 | 97,86 |
| 1953-54 | 2,23,33 | 1,17,08 | 1,06,25 |
| 1954-55 | 2,40,53 | 1,09,62 | 1,30,91 |

(*Source* : Director General, Posts & Telegraphs).

9. The telephone system operates under the constant pressure of a demand that far outstrips the capacity to serve. In the main centres there are long waiting lists of would be subscribers, and they do not shrink even when exchange extensions are put into service, because new demands arise as soon as old ones are met. Outlying districts can only slowly be joined to the net-work. The trunk lines are heavily overburdened, and between main centres as high a proportion as 20 per cent of all booked trunk calls are cancelled for failure to connect within a reasonable time. These demands have not shown any recession in the face of increased traffic. Table 4 shows the actual applications for and installations of telephone services.

TABLE 4

*Registered Applications and Installations of Telephones*

| Year | Applications received during year | Pending demands of the previous years | Total demands of the year | Telephones installed during year |
|---|---|---|---|---|
| 1947-48 | 2,821 | ... | 2,821 | 2,063 |
| 1948-49 | 3,414 | 758 | 4,172 | 1,814 |
| 1949-50 | 2,580 | 2,358 | 4,938 | 1,423 |
| 1950-51 | 2,514 | 3,515 | 6,029 | 1,811 |
| 1951-52 | 3,891 | 4,218 | 8,109 | 1,732 |
| 1952-53 | 4,336 | 6,377 | 10,713 | 3,257 |
| 1953-54 | 9,375 | 17,456 | 16,831 | 5,837 |
| 1954-55 | 12,371 | 10,994 | 23,365 | 8,761 |
| Applications pending at the beginning of 1955-56 | 14,604 | | | |

**Development Programme :**

10. A carefully planned Telecommunications development programme was submitted to us, to cover the years 1954-55 to 1959-60. Some of this programme was carried out in 1954-55, before the beginning of the Plan period. A continued substantial programme during the Plan period is obviously justified by the importance of adequate communications to the functioning of expanding industry, commerce and administration.

We believe that it is not possible for the country, at the present time, to meet all demands for services in this field. The requirement for foreign exchange is particularly heavy, in this programme as in the case of other fields, some of the less essential demands for services cannot be fully met in this Plan period. Even countries which are highly developed have found that they cannot afford to allocate all the resources required to meet the demand for telephones in full. It is also particularly difficult to estimate future demand for telephone services—the actual registered demand is only a small proportion of the need that exists or will develop. The size of the telephone and telegraph development programme should be reviewed during the Plan period, to determine whether needs which are important for the functioning and development of the economy are being met.

11. The development programme now included in the Plan is a very large one in terms of best achievements. To bring telegraph services to additional areas, close to 100 existing post offices will also provide telegraph connections. This development is of particular importance for rural areas. In the cities, teleprinter services to provide direct connections can substantially improve the efficiency of operation of large enterprises. For this purpose about 10 new exchanges, able to serve eventually up to 900 subscribers will be estadlished. Phonogram service will be expanded as well. New circuits, to increase the capacity of the telegraph system will be provided, both within Pakistan and for connection with other countries. Such important connections as Dacca—Chittagong and Karachi—Lahore will have up to 18 telegraph channels, greatly increasing their capacity to handle traffic. A small provision for the introduction of picture transmission, inland and to London, is included as a first experiment in this field.

12. The development of local *telephone* services requires the largest proportion of resources devoted to telecommunications, absorbing about one-half of the total. The number of telephones in service is expected to increase from about 37,000 in 1954-55 to about 75,000 by the end of the Plan period. This represents a substantial acceleration in the rate of telephone installations, as shown in Chart 1, and provides about three times as many telephones as the total registered pending demand at the beginning of the Plan period. To serve the expanded local telephone network about 40 new exchanges will be established and 50 existing ones expanded. To provide service in smaller towns, about 100 public call offices will be opened, in some cases connecting the town by wireless with the main telephone facilities, to different areas will be based on pending demand and anticipated demand arising from the development of the economy.

13. The demand for improved long distance facilities, internal and international, is equally pressing and about one third of the resources allocated to telecommunications will be required for this part of the programme. With the increase in the number of local subscribers, long distance traffic will also increase, but even in the pre-plan period the number of channels between important cities was inadequate, while other centres were not integrated with the trunk system at all. During the Plan period trunk telephone services will be extended to about 100 locations, with new trunk exchanges established at about 20 centres and existing exchanges expanded in about half that number. To provide these services new overhead lines of about 1,000 miles will be needed, as well as a very-high-frequency network radiating from Dacca for East Pakistan, where both underground and overhead lines are less satisfactory. Radio telephone connections will be established to about 20 centres to serve when normal connections are interrupted or for inaccessible places. New or additional wireless telephone links will connect Karachi, Dacca, Chittagong and Rawalpindi. In addition, radio telephone links will be established from Karachi and Dacca with about 15 foreign cities in the Near East, Europe and Far East.

14. To carry out this large expansion of communication services will require a substantial increase in the trained and skilled staff of the department. To train junior professional, technical and skilled personnel, the Department will have one main and three regional centres. It may be necessary to send some senior professional staff abroad for advanced training. Research on techniques and materials would be desirable on a small scale. The Department has provided for a research institute in its plans.

15. While the programme for telecommunication outlined above is not as large as might be desirable to meet all demands in this field, it is nevertheless an extremely ambitious programme, which will greatly improve and expand the services available to the country by the end of the Plan period and should at the very least come close to satisfying all urgent and important needs.

### Progress since independence

16. At partition, Radio Pakistan started with medium-wave stations at Lahore, Peshawar and Dacca with an output of 20 kilowatts, broadcasting only 27 programme-hours daily. Karachi Station was added in 1948, Rawalpindi in 1950. Today, the five regional stations, aided by eight ancillary transmitters have a total power of 170 kilowatts and are putting out 105 programme-hours daily using 17 different languages. This development involved a capital outlay of about 10 million rupees by 1955. The only revenues come from licence fees paid by listeners and from the sale of publications ; they fall far short of the studio and transmission expenditures and the service has to be subsidised. This is only natural in a young broadcasting organisation, which cannot yet reach more than a small proportion of the population. It has, however, created difficulties for the organisation and retrenchments have occurred periodically, including the substitution of transcriptions for live broadcasts. The operating accounts, since 1948-49, are shown in Table 5.

TABLE 5

*Operating Results* 1948—55

(Thousand Rupees)

| Year | Revenues | Expenditures | Deficits |
|---|---|---|---|
| 1948-49 ... ... ... ... ... | 23,62 | 44,84 | 21,22 |
| 1949-50 ... ... ... ... ... | 17,04 | 44,04 | 27,00 |
| 1950-51 ... ... ... ... ... | 21,63 | 50,18 | 28,55 |
| 1951-52 ... ... ... ... ... | 24,27 | 54,81 | 30,54 |
| 1952-53 ... ... ... ... ... | 28,68 | 65,58 | 36,90 |
| 1953-54 ... ... ... ... ... | N.A. | N.A. | N.A. |
| 1954-55 ... ... ... ... ... | N.A. | N.A. | N.A. |

(*Source* : Radio Pakistan).

### Development programme

17. Future development must aim at serving the whole population through medium-wave transmitters. Indeed it is the remote village community which particularly benefits from broadcasts. The development programme will greatly increase the coverage in West Pakistan and provide nearly complete coverage for East Pakistan. It provides for the establishment of four short-wave transmitters, four full-fledged broadcasting stations and five satellite stations, as well as receiving centres, studios, recording vans and technical buildings. On its completion, Radio Pakistan will have 23 medium and short-wave transmitters, with a total power of 253 kilowatts, broadcasting an estimated 162 programme-hours daily.

18. The effectiveness of this development scheme depends on the number of receiving sets installed in the country ; the difficulty is particularly acute in areas without electricity, requiring battery sets, with high running costs. The problem of getting more sets into the homes of the people is discussed in the Chapter on Industry.

**Summary**

19. The expenditure we recommend for the development of the communication services during the Plan period is summarised in Tables 6 and 7 below :

### TABLE 6

*Proposed development expenditure on communication services by sectors*
1955—60

| | (Million Rupees) |
|---|---|
| Postal services ... ... ... ... ... ... ... ... | 17 |
| Telecommunications ... ... ... ... ... ... ... | 212 |
| Broadcasting ... ... ... ... ... ... ... ... | 25 |
| Total | 254 |

### TABLE 7

*Proposed development expenditure on communication services by years*
1955—60

(Million Rupees)

| | 55-56 | 56-57 | 57-58 | 58-59 | 59-60 | 55-60 |
|---|---|---|---|---|---|---|
| Total Expenditure ... ... | 37 | 52 | 53 | 56 | 56 | 254 |

# SECTION 'E'

# SOCIAL SERVICES

# CHAPTER 25

# HOUSING AND SETTLEMENTS

## INTRODUCTORY

1. The expression " housing and settlements ", as used in this chapter, means the sum-total of physical facilities essential to the development of a harmonious, healthy and happy community life. Human settlements consist of houses in which people live ; public buildings required for the conduct of political and civic affairs ; market places in which goods and services are exchanged ; schools, libraries, community centres and places of worship essential to education, communal life and religion ; the community facilities needed for health, such as water supply and sewerage disposal systems ; hospitals and dispensaries ; and essential public services, such as electricity supply, streets and communication systems.

2. In developing settlements, whether cities, towns or villages, one cannot think in terms of houses alone. Not only are the other aspects of settlements equally important, but they are often the ones which people cannot supply themselves, and which the community, working through the Government, has to provide. A government development programme for housing people, therefore, has to be planned in terms of the whole settlements problem.

3. The policies and plans in this chapter are conceived in these comprehensive terms. The estimated expenditure, however, excludes the cost of buildings, required in special fields : hospitals, dispensaries, schools, Village AID training centres, houses built up by the irrigation departments and the railways, houses built on newly irrigated and settled land : these expenditures are included in the scheme of which they are part.

4. Housing and human settlements, in these broad terms, are of great importance to social, political, cultural, and economic life. They are the first type of investment carried out in any society, and in a developing economy the amount of public and private investment in housing and settlements frequently is larger than in any other field. This is, however, often overlooked, because the investment takes place in thousands of small units all over the country. The construction and maintenance of housing and community facilities is both essential for economic efficiency and an important source of employment. A construction programme of 50,000 housing units per year with the associated water supply and drainage facilities, streets and markets, and so on, would probably offer employment opportunities of the order of about two hundred thousand full-time jobs. Socially, housing profoundly affects the state of health and physical well-being of all the people ; tuberculosis, for instance, cannot be controlled unless housing is improved. It also affects morality, crime, and mental health. In areas where houses or settlements do not allow the formation of communities, where no community life springs up and people live as isolated families, social and political instability and unrest are greatest. This is especially the case in newly-developed areas which have been poorly planned. The design and construction of houses also can have a profound influence on the culture of a nation, as they provide a daily example of the beautiful or the ugly, of the essential or the frivolous, of the use of indigenous techniques and ideas, or excessive borrowing from others. Beyond this, housing policies can serve other development goals as they attract people to particular areas or help particular groups of people.

5. Effective planning in the development of housing and human settlements is especially urgent because the expanding economy calls for rapid growth of housing especially in newly-developing areas ; the need to house refugees and flood victims adds to the urgency. Housing and settlements must be planned to provide the physical environment in which a

happy and healthy community can flourish. We cannot afford to waste our limited resources on settlements that will turn into slums, needing later to be either cleared or restored at a great cost. This requires careful, timely, and imaginative planning at all levels. The planning process must extend from the housing development programme of the whole country to the smallest community, with the centre of interest in the lives of people, and not in buildings and settlements as such.

## PROBLEMS AND DEVELOPMENT SINCE INDEPENDENCE

6. The condition of houses and settlements in this country was never good, because of the poverty of the great mass of the people, who barely earned enough for their food. Only the richer people, both in town and country, could afford good housing. Community facilities—water supply, sewerage, streets, and public buildings, such as market places, schools and dispensaries, were inadequate in number, size and quality.

7. Since independence the problem has been aggravated and continues to be aggravated, by the influx of refugees, the increase in population, and the expansion of towns. By 1951, refugees numbered some 10 % of the total population. The special problem of housing them was eased by the fact that many could occupy evacuee properties. But many did not settle in areas with evacuee houses, and many evacuee houses were destroyed during the disorders after partition. There is no accurate figure available, but the refugees probably need half a million dwellings.

8. The number of houses required by our increasing population depends mainly on the size of the family. Many of the big patriarchal families are splitting into single units, as industrialisation and urbanisation take place. The influx of refugees into urban areas and the tendency of every family to acquire a house for itself have increased the pressure. We estimate roughly that the yearly population increase of over one million means an additional need of about 200,000 new houses each year. The need for replacement may easily increase the figure to 300,000 or 400,000 a year.

9. The unfulfilled demand for housing was and is concentrated in particular settlements, mainly the bigger towns. The new administration of the country and the new industries and ports have brought phenomenal growth not only to such cities as Karachi, Dacca and Lahore but also to many smaller ones. In addition to demands created by urbanisation and industrialisation, there has been a special need for homes close to new development projects, such as Karnafulli and Warsak, and in areas newly opened to cultivation, such as the Thal and Abbasia. The housing shortage has been increased by losses through floods, by bad maintenance of evacuee properties, and by other causes.

10. The country has made a very large effort to meet the challenge of new demands. Private investment in settlements, so far as we can judge, has been much higher since independence than before. At present, monetary and non-monetary investment combined may be greater than 250 million rupees per year, and it is still increasing.

11. The Government have spent something like 150 million rupees since independence for housing and settlements to accommodate tens of thousands of refugee families. In addition, a major programme to house the civil servants of the Central and Provincial Governments and employees of the railways, ports and post, telegraph and telephone services has been carried out. The Government have also provided houses in areas newly colonised or at the sites of other development projects. Taken all together, public expenditure on houses has been about 300 million rupees between 1947 and 1955, most of it during the later years.

12. In addition, an estimated 70 to 80 million rupees was invested by the Government in community facilities, such as water supply and sewerage for Karachi, and sewerage for Dacca, and several town improvement schemes, including a large one in Lahore. Total Government expenditure on houses and settlements has probably been of the order of 370 to 380 million rupees since independence, with a maximum of about 100 million in any year.

13. Though the total effort has been very large, the problems have been so great that there is still a serious housing shortage. In all the towns there are large numbers of homeless families. The older parts of the towns are grossly overcrowded, and the public services and buildings are totally inadequate. New suburban building is often characterised by bad design and construction, excessive use of expensive building materials, and inadequate planning for the use of land. Towns are growing without adequate town plans ; many reflect the same array of problems ; an increase of population and insufficient resources with which to create rational and balanced human settlements.

14. There is a shortage of buildings for special purposes essential to community life. Markets, for example, are inadequate in numbers, quality, and most of the new ones are spreading chaotically. The development of agriculture will affect very largely the location and size of market towns. Many small towns will grow, others will decline, and completely new market centres will emerge in areas which are being opened to cultivation. Many old centres will require complete reconstruction, and the new towns will require careful planning.

15. In general, the villages are no better designed as places to live in today than they were centuries ago. Then village sites were often determined by the needs of defence or by the interets of feudal landlords, but not by the needs of their inhabitants. They are ill-adapted to present needs, they are overcrowded, and they lack community services.

16. The situation is rendered more complex and intractable by a number of additional problems :

(*a*) There is no general settlements policy on which a comprehensive plan can be based. There are few trained people available either to formulate such a policy or to devise programmes. Further, basic data for planning settlements, such as specially prepared topographical surveys and appropriate aerial photographs, are either very inadequate or completely lacking ;

(*b*) Arrangements for financing house construction are inadequate, hampering private building ;

(*c*) In addition to the shortage of settlement planners, there is a parallel shortage of civil engineers and managers. This shortage is reflected in outmoded construction techniques, low productivity and wasteful use of building materials ; and

(*d*) Administrative and legislative provisions for settlement problems—land use, construction standards, supply of community services—are inadequate : responsibility has not been vested in a single public agency either at the Centre or in the Provinces. There is no clear-cut authority for resolving problems of urban development, or even for special aspects of development, such as water supply.

17. The need for more houses, more public buildings, and new or expanded community services has been rapidly increasing since independence, and will continue to grow as the country develops, population grows, and people demand better living conditions. The

effort to build more houses and buildings and to improve the cities is already large, but it is not following any consistent plan. The purposes of the programme we propose are :

(*a*) To determine a suitable and consistent housing programme, in the framework of a national housing policy ; and

(*b*) To devise arrangements for its application including the establishment of the Housing and Settlements Departments to carry out the programme.

## POLICIES, PLANS, AND GENERAL PROJECTS

18. In this field, as in others, targets cannot be settled on the basis of some absolute standard of need—the shortage of houses is too great for that. If, as a general hypothesis, we assume the standard of a house costing Rs. 4,000, then merely to house the annual increase in numbers of families—over 200,000—would require nearly 1,000 million rupees. The cost of maintaining the existing stock of houses must be even greater, so that over 2,000 million rupees per year would be needed merely to house new families adequately and maintain existing settlements, without meeting the needs of homeless or inadequately housed people. To raise standards of existing housing and community services appreciably, we would need at least one million new houses, 100,000 other buildings, and modern water supply systems and other community facilities for the towns and villages of the country. The bricks, cement, steel, skilled labour, designers and other resources required for these works would be formidable problems. Resources of this magnitude are simply not available at the present time, and will not be for years. This fact greatly influences the policies, programmes and plans which are feasible in the housing field.

19. What is done in the next few years will be critically important in determining what the houses and settlements will be like for decades to come. The plans adopted, the housing materials utilised, the patterns of water pipes and streets and the construction designs used will be with the community for many years. If mistakes are made, if the buildings are ugly or expensive, if towns are planned wastefully or grow haphazardly, it may be decades before the areas can be restored, because such structures last a long time and their influence often lasts even longer. It is relevant also that most of the houses are built and maintained by individuals, not by the Government. The Government can assist, advise and regulate private housing ; it can experiment, but it cannot directly control most houses that are built.

20. The housing and settlements programme we propose is based on the following policies and priorities :

(*a*) The Government's programme must be designed to mobilise to the maximum the labour, funds, and physical resources of the people who will own and use the houses and community buildings. The Government should provide only those resources which cannot be provided by individuals. The Government must often take the initiative where private activity is slow, inadequate or poor, but should decrease its participation as soon as it can. Policies of this kind will provide the largest possible number of houses and community facilities with the limited resources the Government can devote to this field ;

(*b*) The Government's role in surveying, planning, designing and experimentation can have effects greater than those of the physical resources it can provide. By careful plans at all levels—Centre, Provinces, Municipalities, Villages—it should be possible to avoid costly mistakes, and obtain maximum results, from limited resources ;

(*c*) The programme carried out by the Government should be intended not only to provide housing and settlements, but also to serve as an experimental and educational programme. The programme executed over the next five years should be used to find the best and cheapest solutions to the problems and to make them widely known ;

(*d*) While houses, buildings, community facilities and cities need to be planned to meet future needs, they can and should be built only to match present needs and resources. They can later grow, along with the needs and resources of the people they will serve ;

(*e*) No programme can meet more than a fraction of the needs ; priority should be given to the most indispensable schemes ; and

(*f*) It would be undesirable to commit large resources to the construction of inessential public buildings or of costly government residences until more visible progress has been made with housing for the most vulnerable sections of the community.

21. The housing and settlements programmes proposed for the next five years could greatly improve the immediate position. Equally important, they could provide a sound basis for much more rapid expansion later on. Therefore, the minor expenditures proposed for preliminary stages—research, surveys, planning, and experiments—are particularly important, because they will lay the foundation for a large-scale programme later on.

22. The first step in any programme must be research and investigation. A survey must be made of needs and resources to provide a more accurate picture of the numbers, types, and location of houses and settlements necessary, and of the resources available throughout the country for building them.

23. It would be desirable to have a cemplete housing census, but this is not possible in the immediate future because of the expense and time involved. We propose instead that estimates be obtained from local authorities of the current needs for housing, public buildings, water supply, sewage disposal, streets, and other public facilities.

24. It is necessary also to know what work is being carried out to meet these needs. Too many housing and settlements programmes throughout the world have failed because they did not take into consideration the experience gained through centuries of effort under the same conditions in the same locality. An extensive survey should be carried out to collect data on the nature of the private and government efforts throughout the country in housing and settlements. The survey should cover the present condition and nature of houses, buildings, and community services, and their planning and financing in both urban and rural areas. This survey will eventually require the services of a group of specialists in this type of work, including not only architects, engineers, and town planners, but also social workers.

25. The development of settlements also requires topographical surveys. There are no exact, large-scale maps even of such cities as Karachi, Lahore, and Chittagong. Costly errors are inevitable under these conditions. The time and personnel are not available for a complete survey of all important urban and rural centres, but we have provided for the survey of all areas in which important developments are expected during the next five years. The success of this project will depend on the selection of the settlements which will be developed at greater speed in the Plan period, and, therefore, will play a particularly important role in the future. For settlements not marked for rapid development, plans are to be based on less detailed existing surveys and air photographs. The project for topographical surveys should be undertaken immediately. Priorities among settlements to be surveyed should be settled, and the Survey of Pakistan be asked to select appropriate agencies for air surveys and ground work, and to supervise the preparation of the maps.

26. These basic policies need to be prepared in detail and translated into guides and instructions for projects and activities. The Central Government itself will need technical advice in formulating general policies, and will have to assign special tasks to groups of

experts—for example the formulation of policies for urban land use or for housing loaos Because private efforts in housing are particularly important, a major aspect of the work will be to develop comprehensive and detailed policies, regulations, and buildic ngdes, to guide private builders. The Government must provide guidance on the use of building materials, types of plans for rural and urban houses in different areas, models of farms and small agricultural settlements and types of small water-supply systems, of cesspools and of drainage and sewerage systems. Provision has been made for these purposes in the Plan. There is a strong case for restricting the construction of luxurious houses, the use of uneconomic designs, and the waste of imported building materials. But such action must wait upon a full examination of the effects of these restrictions, and of the feasibility of their equitable enforcement. Meanwhile the first priority is to have more houses built to meet the needs of the people : it is essential to avoid any government action which might check house building.

27. Possible changes in the Rent Control Act likely to limit private initiative in building houses present a problem similar to that of whether or not to control unduly expensive house building. The repercussions of its provisions on the cost of living must be appraised and the experience of other countries examined before modifications are considered. Policies on rent control and restrictions on buildings should be formulated under the general housing scheme and by the experts charged with preparing detailed policies.

28. Probably the greatest obstacle to sound development is the work of designing the numerous buildings that are required. We estimate very roughly that our programme for housing and settlements would require some 1,500 architect-designers as well as large numbers of other specialists, if they were to design individual buildings, and settlements separately. This is wholly impossible. But, planning and design work are crucial to success and must be started immediately if they are not to delay the work programme. There is only one answer to this problem : not to aim at individual designs for every building, but instead to prepare standard designs for various types of houses, schools, village dispensaries, etc., with the help of such experts as are available.

29. The danger of this expedient is that standard designs may be so limited in number that they do not meet the real needs of every locality. This might be avoided by the preparation of designs of basic types of structures and parts of structures, which could be combined in hundreds of different ways to provide a solution for each specific case. With this approach, the number of designers needed can be reduced to manageable proportions. In addition, this method can open the road to standardisation and prefabrication of different materials, greatly reducing the cost and the skilled labour required. We have provided for employing the designers required to prepare plans for the essential types of houses, and for the elements of rural and urban settlements. The types of designs, when prepared, should be made available to local engineers, works supervisors, and to the Village AID programme and local technicians, who can assist in carrying them out. The planning of special buildings such as universities, of major towns like Karachi, Lahore, or Dacca, and of water-supply and sewerage systems for cities, cannot be done by using standard designs or types. These must be undertaken as specific expert assignments.

30. Every project for the construction of houses, buildings, and community facilities by the Government, local authorities, or any other bodies, should be conceived as an experiment to improve knowledge and standards. This spirit of experimentation should infiltrate every aspect of the programme and spread throughout the country gradually to provide better solutions to problems. But this approach, while important, is not enough. Some formal centres for experimental work are needed ; at least three experimental housing and settlement centres should be established at Lahore, Dacca, and

Karachi. In order to reduce the cost of these projects, to make them more useful, and to obtain the reaction of the people living in experimental houses, these centres should be established in big new settlements.

31. To disseminate the results obtained at the experimental centres and the experience gained abroad, to train skilled workers, architects and planners, and to provide widespread information on building techniques and materials, we advocate a general educational programme on housing. Information would be provided both to specialists and to the large number of people more generally interested in housing or settlements, by such means as :

(*a*) Organising national and regional seminars ;

(*b*) Providing teachers and skilled workers for the Village AID and urban community development projects ;

(*c*) Preparing and organising exhibitions and lectures ;

(*d*) Producing and distributing films, slides photographs and other educational materials ; and

(*e*) Publishing a monthly bulletin—an indispensable link for all people working in this vast field in a big country.

32. In addition, a vocational training programme is needed to produce skilled labour, master-masons, and technicians to be building managers. The more highly trained workers will in turn influence the general level of achievement in building. Training centres should be established, in large and growing towns, for the purpose of :

(*a*) Providing day-training courses for young men who want to be better trained and who can afford to attend them ;

(*b*) Giving training in the evening to workers employed during the day ; and

(*c*) Providing roving units, consisting of some skilled people, to work in different projects for specific periods, and assist in community or even private effort.

33. Finally, schools of architecture and planning are needed to train the country's own technicians and gradually replace the foreign help necessary at first. One school should be established in each Wing, perhaps at Lahore and at Dacca or Rajshahi. Both schools should be autonomous ; but the first one could, for the first years, use the facilities accommodation and equipment of the Engineering College at Lahore. These schools should train two types of students. A larger group of those intending to go back to their districts and their regions and work on local problems should study mainly the principles and possibillities involved in implementing schemes for small market towns and rural areas. They should be able to select and modify appropriate types of designs, or in case of need design minor buildings in their areas, and prepare community plans in accordance with general housing policy and the current building codes. The second cagtegory of students would be the general planners, with qualifications corresponding to the western degree of Master in Architecture and Town-planning, who would be put in charge of major urban areas or whole regions, of planning for the country as a whole, or of designing major architectural projects. Because this project will have the greatest long-run effect on the country's housing developments, the best available people should be engaged for it. They must be adaptable, imaginative, and original—able to serve the special objectives and needs of a country now entering a new era of economic and social development.

34. Both schools can start in connection with the planning effort which will be made for the implementation of the present programme, and thus they can first be organised and operated as small training units inside the housing and settlements planning agency. The training will thus be from the beginning practical and adjusted to the real conditions of the country.

35. It is necessary also to provide specialised training and experience in the management of very large housing projects, from the beginning of construction, and through the allocation of houses, to the maintenance of the whole project. The number of such large-scale projects will increase greatly as the expanded housing and settlements programme gets under way. Contractors who have specialised in mass production of houses and industries specialising in pre-fabrication of their components are needed. The actual construction of most projects will be by local people, engaged for the particular scheme. But in order to learn as much as possible from foreign experience in these fields we propose that the services of foreign groups should be secured for managing some typical housing projects. These groups, which should come from different countries to provide the widest possible experience, would be expected to employ and train the greatest possible number of Pakistanis in all branches of their work—construction, procurement of materials, accounting, maintenance, and others. In addition to the large education and training programme, provision should be made for a small number of people, say, four or five a year, to be sent abroad for short periods to visit countries with substantial experience in this field.

36. To facilitate the production of more, better, and cheaper houses, more, better and cheaper building materials are needed. For this we recommend a building materials programme to study the use and production of building materials and to provide technical advice and loans to the building materials industries. A few experts specialising in this work would be engaged to assist in preparing a survey covering :

(*a*) The country's needs of building materials ;

(*b*) The possibilities for local production of more, better, and cheaper materials ;

(*c*) The regulations for their use ; and

(*d*) The policies to be followed with regard to their importation.

The experts would also supplement the general education programme by providing technical assistance to the building materials industry. Loans which could perhaps be channelled through the small Industries Corporation should be made available to small firms which could contribute to the production of cheaper or better products by the use of local materials, mainly clay, lime, timber, sea-weeds, bamboo and, eventually, cement. Assistance to major industries could be given by the Ministry of Industries and the new Industrial Bank about to be established. We discuss these possibilities in the Chapter on Industry.

## A PUBLIC HOUSING AND SETTLEMENTS PROGRAMME

37. In addition to policies and plans, surveys, experiments, designs and education, the Government has to participate substantially in the actual construction of houses and settlements. Some of the work, especially in improving water supply and sewerage, cannot be carried out by private enterprise ; the construction of houses could eventually be left to private enterprise, but without government assistance the effort would be too small and ill-matched with needs. The Government's contribution to the solution of housing problems will involve a single coordinated public housing and settlements programme. We recognise that housing problems are more acute for specific groups of the popluation like flood victims, refugees, and the Government's own employees—towards whom the Government has special responsibilities.

38. Where the groups with special difficulties are relatively small, their problems can be met as part of the general programme, or special provision can be made for them as needed. This is the case with flood victims, whose special problems can be handled by chanelling some part of special relief funds through the Housing and Settlements Departments. In the long run it should be one of the special tasks of these department to study how the effects of floods on settlements can be minimised by better ways of planning and constructing houses, buildings and community facilities in the settlements liable to flooding.

39. The housing problems of refugees are so large in relation to the total programme that special provision must be made for them. This does not, however, mean physically separate settlements, but rather that houses and plots should be reserved for refugees within larger settlements.

40. The creation of the new administrative centres at Karachi, Lahore and Dacca and the growth of many regional centres require adequate housing for civil servants, towards whom, in the interest of efficient administration, the Government has particular responsibility. In those areas their needs should be given special attention in allotting the plots and houses available. Elsewhere, the needs of civil servants should rank with those of the public generally, except for those who are liable to transfer from town to town. To meet their needs the Government should build and retain the ownership of special houses as at present : this part of the programme is discussed later in this Chapter (Para. 82).

41. Government activity in housing and settlements will not be confined to the specific programmes described in this Chapter. The Village AID programme will contribute substantially to improved housing in rural areas. Of the Village AID development funds, about 50 million rupees may be spent on settlements, mainly in connection with water supply, drainage, and community centre schemes. In order to ensure that these activities will be consistent with the general development programme for houses and settlements, it is essential that experts of the Housing and Settlements Departments should act as advisers to Village AID and as instructors to the village workers, and that the Village AID programme should follow the regulations, standards, and types of buildings presented for the main housing programme.

42. The Government should also foster housing and settlements in new and old colonisation areas. We have provided separately for colonisation expenditures in the Chapter on ' Agriculture ' ; a substantial proportion of these funds will be used for housing and settlements.

43. Finally, the Government should contribute to housing through such specialised agencies as railways, posts and telegraphs, port authorities, military services, and Pakistan Industrial Development Corporation industries, which have been building houses for their employees and should continue to do so. The Housing and Settlements Departments should assist them as far as possible in the planning and execution of their projects, and define general policies and rules which should govern their schemes.

44. The toal contribution by the Government to the housing developments discussed in this Chapter is likely to be of the order of 771 million rupees. The scope and nature of the public housing programme must be based on realistic estimates of what should be spent to provide houses for families in different income groups. Whether the cost of the houses is to be borne by the private or the public sector, no community can afford to build a larger number of houses at a cost which is unrealistic in relation to the income of the occupants. in general the cost of a house should never be more than twice the yearly income of the

potential occupant. This is not an absolute rule but a general guide for practice, derived from experience. Very low income groups cannot afford a house costing in money as much as twice their yearly income, but by contributing their own labour to its construction they may be able to obtain the equivalent house at a lower money cost.

45. No official estimates of income distribution exist, but such figures as are available suggest some tentative conclusions which have been confirmed by experience, and by sample studies. In the rural areas the lowest income groups are the agricultural workers, with a yearly income ranging from Rs. 120 to Rs. 450 : on the test proposed they cannot afford houses costing in money more than Rs. 240 to Rs. 900. Landowners' incomes may in general range from Rs. 150 to several thousand rupees a year : they can afford houses costing Rs. 300 to Rs. 10,000. For the towns we have made very rough estimates, based on the assumptions that 30 per cent of the families have less than Rs. 500 a year, 30 per cent Rs. 500 to 1,000, 30 per cent Rs. 1,000 to Rs. 1,500 5 per cent Rs. 1,500 to Rs. 3,000, and 5 per cent more than Rs. 3,000. The maximum cost of houses for these groups could under the most favourable conditions be as shown in Table 1.

TABLE 1

*Illustration of estimated yearly incomes per family and maximum feasible expenditure on house building.*

(Rupees)

| Yearly income of family | Cost of house | Approximate cost of land and development per house in column (2) | Approximate total expenditure on house building |
|---|---|---|---|
| (1) | (2) | (3) | (4) |
| 500 | 1,000 | 700 | 1,700 |
| 1,000 | 2,000 | 1,400 | 3,400 |
| 1,500 | 3,000 | 2,100 | 5,100 |
| 3,000 | 6,000 | 4,200 | 10,200 |
| 5,000 | 10,000 | 7,000 | 17,000 |
| 10,000 | 20,000 | 14,000 | 34,000 |

46. The figures in Table 1 are purely illustrative, but, for want of firm information, we have based our housing programme on them. For some schemes we have provided for the cost of improvement and community facilities as well as for the houses them selves. We do not, in the public programme, provide for building houses for families with incomes of more than Rs. 3,000 a year, except for a limited number of civil servants (para. 82 below).

### Rural areas

47. Most of the development in rural areas will come as the result of private activity supported by the Village AID and rural development programmes which are discussed in Chapter 15. But some special problems will be too large or too new for these programmes, will require an experimental approach which they cannot provide, or will need to be faced in areas where these programmes have not progressed. For these reasons we have made special provision for rural housing and community facilities.

48. Rural water supply needs special attention. The position in East Pakistan has deteriorated : about 38,000 of the 55,000 tube wells already sunk in the Province have gone out of order because of inadequate maintenance and the effects of recent floods. A provision has been made in the Plan for Rs. 33·5 million to purchase materials and technical assistance, for resinking all the derelict tube wells and for sinking 50,000 more. The position in West Pakistan is different both in the nature of the problem and the measures required, but there too, action is urgently needed. 3,500 wells can be sunk in West Pakistan out of the provisions in the plan. Surveying and planning should be undertaken by public health engineers, and executed in co-operation with district officers and local bodies. When the Housing and Settlements Departments begin to function, planning of rural water supply should come under their jurisdiction. This scheme envisages a big effort in the present Plan period and further expansion in later years.

49. The other part of this scheme provides for the construction of model experimental and pilot houses, in different areas, and for experimental installations of different types of small drainage schemes, latrines, community centres, streets paved with local bricks, and other community facilities, all designed to use local materials and local labour to the greatest possible extent.

50. This work will be particularly valuable in obtaining experience of different problems in different areas, which will facilitate planning and expanded programme in later years. In order to obtain such wide and diverse experience, funds under this project will have to be allocated by competent technicians to key places and schemes in areas where the most useful experience can be gained. In this respect the project differs from Village AID and Rural Development projects where selection of schemes and areas depends primarily on the interest of the villagers immediately concerned. It is meant to find the solution of technical problems so as to facilitate the expansion of these programmes over larger areas in the future.

### Improvement of existing towns

51. Practically all the towns need substantial improvements and organisations to carry them out. Despite the great need, we have included only 10 million rupees for the improvement of existing towns. The major reason is that the towns have no organisation to use larger sums effectively. Not one has a complete and officially approved town plan or master plan. The first need, therefore, is for realistic and economical town-plans. These will have to be prepared by competent town planners, using exact topographic surveys, after a thorough study of the situation. Only after they have been approved by the appropriate authorities can they be implemented with an assurance that the best use will be made of the resources available. In many towns implementation depends on the establishment of appropriate bodies. The improvement trusts, which exist in Karachi and Lahore but not in such cities as Dacca and Chittagong, can perform this function. More improvement trusts should be established, and at the same time expert studies should be made of the financial, legal, and administrative problems involved in town improvements, in order to find the best possible administrative solution. It will be necessary to clarify the position

of improvement trusts, especially their relations with the municipal bodies. Until the results of such studies are available, existing improvement trusts and municipal bodies should be assisted by the Government in formulating and carrying out their programmes. For Karachi and Lahore, provision has been made in the Plan to enable them to design projects and then begin their execution. At Dacca and Chittagong, the study and creation of improvement trusts should proceed simultaneously with improvement plans. For other smaller cities the amounts allocated should be used to finance the creation of trusts and the first studies of their problems. Many of the schemes will require widening of roads and elimination of congestion. If plans are prepared by the municipalities and improvement trusts, they can be implemented in later years on the basis of revised legislation resulting from the studies we advocate.

52. Existing towns require improvements but they need still more urgently improvements in community services. Adequate water supply and sewerage facilities are particularly essential. It is natural that the greatest demand in this field has been for water supply and sewerage schemes, and that these constitute the largest programme to develop community services now under way. The costliest of these projects is that for the improvement of water-supply of Karachi, designed by experienced engineers and already under construction. It involves supply, purification, and distribution of water and when completed will supply Karachi with 60 million gallons of water a day, trebling the present supply. On the assumption that the population of Karachi will reach 2 millions in ten years time, we have provided for the completion of this scheme by 1965. Under this assumption Karachi will have 1·6 million people in 1960 and, if consumption is no more than 25 gallons per person (against 20 at present), the total quantity required will be 40 million gallons. This means that less than half of the additional water to be provided by the scheme will be needed by that time. However, some parts of the scheme, mainly those relating to the supply of water, cannot be built in stages. We have provided for the completion of these basic works by 1960 and for an increase of 20 million gallons daily in the available supply. By 1960 the phasing of the project should be re-examined. We have provided for 70 million rupees during the Plan period of the 107 million rupees required for completion of this scheme.

53. We also recommend a co-ordinated survey of the area for a new Federal Capital and Karachi, as the basis for an eventual joint system of water supply. The present water scheme will not be able to serve all areas which will eventually be included in Greater Karachi, and for this and other reasons the networks of many areas must be redesigned. A survey of the whole Karachi area is, therefore, particularly urgent. The Dacca and Chittagong water systems are now being surveyed. Both cities need better and more water. We consider they merit high priority and recommend that the municipalities should immediately engage technical consultants who will complete the surveys, design the projects and train local engineers to see them through. It is hoped that both cities will be able to start construction some time during the third year of the Plan period. There are many more towns in both Wings which need better water supply. The situation is especially critical in towns with a big influx of population like Hyderabad. Twenty million rupees have been provided tentatively for other towns. This amount can be allocated definitely to particular towns only when the studies which have to be undertaken are complete and enable an assessment of needs and priorities to be made.

54. The Karachi drainage and sewerage improvement scheme is under construction. We recommend that the major part of it should be completed during the Plan period, and the remainder during the following five years. Under this time table, Karachi will have a good service for its present population even by 1960. Dacca is the only other town where

a drainage and sewerage system of importance is under construction. We have provided for the completion of this project and strongly recommend early execution of that part of it which will serve to relieve the intensity of the recurring floods to which Dacca is at present liable. Chittagong badly needs a sewerage system, but it must first be studied and designed. We would urge that this work be undertaken immediately so that this extremely important scheme can start as soon as possible. Additional funds have been provided in the Plan for other towns, mainly to be spent on the survey and construction of indispensable projects. Thus, by 1960 it will be possible to plan for a substantial number of community facilities on the basis of very concrete data.

### New settlements

55. The schemes discussed above are for the improvement of existing settlements. They do not change the existing conditions basically, except to improve public health. We now consider schemes for the creation of new parts of existing towns or completely new towns. The policy discussed earlier of obtaining the maximum development of housing and settlements for a given amount of government funds must concentrate on providing the basic community services which people cannot furnish themselves. Given these, some people can build their own houses ; others cannot, and must be aided, at least with building materials ; still need to have at least the basic nucleus of a house provided for them, to which they can add later. Finally, other groups will require complete houses, built to varying standards. The groups which require very large government assistance will decline over time, because the neediest cases will gradually be dealt with, and those who are left will increasingly be able to carry on without further government help. We have, therefore, provided for the development of many more building plots, since many people, given help in obtaining a developed site, can build their own houses. Secondly, the Government should not retain ownership of the houses it builds, but transfer it to private hands as soon as possible. Not only does this result in some recovery of government funds, which can be used for additional construction ; it is also essential to avoid high maintenance expenditures and rapid deterioration, and to foster the development of communities and the feeling of participation in property ownership. Houses which are not owned individually deteriorate rapidly and are not maintained cheaply by the inhabitants themselves, but expensively, by costly administrative establishments. People who do not own houses often lack the feeling of permanence, which is important for the development of a true community. Therefore, unless occupants are required by their work to move frequently individual ownership by the inhabitants is by far the most desirable arrangement. Finally, efficient low-cost construction by Government can be achieved only if development of land and house construction take place in units designed for at least a few hundreds of families. In such units costs are low, management is easier, building methods can be taught, and building materials produced locally. It is only in such units that the new inhabitants can develop into organised communities.

56. The largest scheme under this programme is for 150,000 building plots in units generally of several hundred plots. These will be open to virtually everybody. Civil servants will need special consideration in some areas, and some units should be so located as to be of special service to industrial workers and miners. This does not mean separate settlements for any group, not even for refugees. It means only that special consideration should be given to particular groups in making allotments of the plots or houses in specific settlements.

57. The scheme for the development of plots is of critical importance. People, even if unaided, will some day, somehow, build their own houses, but they will not build water supply and sewerage systems. This consideration is often overlooked, and as a result

unhealthy settlements are allowed to spring up, and have later to be supplied with basic facilities at a much higher cost. It is the Government's first duty to provide a healthy foundation for new communities and their houses by developing the land. To this end the Government should purchase or requisition the necessary land, and prepare rational designs of the settlements, so as to create communities that are suited to local conditions and as far as possible self-contained. If they are outside the established towns, they must be co-ordinated with industrial areas so that workers do not have to go long distances to work.

58. In all cases, these communities must have all essential services, such as elementary schools, mosques and local markets, planned to permit access from all parts of the community without crossing any major street. They must enable the people to organise themselves into social groups through easy access to the centre of interest of every neighbourhood whether the local water tap or the market place. We propose that 7,500 shops should be constructed within the provision made in the new settlements.

59. The creation of settlements will involve, beyond purchasing the land, and planning its development, the construction of the sewerage system, with a connection to every plot ; a water supply system with taps, if not for every family, at least for every 12—20 families paving the streets suitably for the local traffic, and the construction of basic parts of shops and markets. The cost of all these services is reckoned at an average of Rs. 1,000 per plot. In addition, these communities will require schools, health centres, and other buildings. Provision for them has been made in other relevant parts of the Plan, for instance, for schools in the Chapter on Education and Training.

60. The next step after the preparation of the plan and development of the land is the construction of the houses. For people who cannot build or buy a house of their own, but who can contribute to the construction of a house with their own labour, we propose a scheme of self-help housing. This includes the procurement and distribution of enough building materials for 20,000 houses, costing about Rs. 700 per house. Assistance should never be given in cash, but in materials, technical assistance, and some days' work of skilled workers. Materials should be as far as possible local and supplied as finished parts, not raw materials like cement and timber, which present difficult problems of handling and inspection.

61. The people who can benefit from this scheme will need assistance in their dealings with the sponsoring agency and in their actual work. The beginning may be difficult, and architects and engineers are not the best people to assist on the social aspects. This scheme should be closely co-ordinated with urban community development projects proposed in the Chapter on Social welfare, in order to take advantage of the co-operation of trained social workers. The number of units we propose is small, because the people and the administration are unaccustomed to such methods. After a few years' experience this scheme should probably be extended.

62. Self-help housing will not meet the problems of all families. Some families have no male members able to undertake construction ; others have no time to devote to it. On the other hand they may have some money and be willing to spend it to obtain at least one room for shelter. For families of this type we have included a project for the construction of nucleus houses by which we mean the construction of the first elements of a house. Consistently with the principle of planning for the future but building for the present, we believe that plots should be prepared and plans made for complete houses on them but the houses should be so designed that they can be built in stages. The first stage is that of a nucleus, which should consist of a compound wall with its door, one room and

one latrine. Eventually such a house would have three rooms, kitchen, bath room, store room and latrine. At an average cost of Rs. 1,240 we have provided for the construction of 55,000 nucleus houses.

63. There would be some families able and ready to pay more in order to get a better house. For them we have provided for the construction of 14,000 two or three-room houses at an average cost of Rs. 2,500. Plans for these houses will permit their later expansion by the owners to serve large family or other needs. Some families will be able to make a larger down payment and be eager to start with a bigger house. For them 4,500 houses are proposed in the Plan at a cost ranging from Rs. 3,000 to Rs. 6,000 at a weighted average cost of Rs. 4,000. Again, these houses could be designed for later expansion by their occupants in years to come.

64. The success of these schemes will depend very much on the designs of both the complete settlements and the different houses. The basic principle underlying the designs should be preparation of types which can be built in different stages. Houses, settlements, or community centres should never be built initially in their final size and form. Every family and every community must hope to grow bigger and wealthier. For this reason all units should be designed in expectation of extensions which may take place over a period as long as a generation. It is important to avoid limiting houses to the provision of rooms only. A house really consists of three elements : the rooms, the covered verandah, and the open courtyard surrounded by a compound wall. Life in our climate requires in-and-outdoor living throughout the year for every economic group. For low-income families verandahs and courtyards have added importance. The verandahs are needed for living purposes and lead to economy in building materials and wall construction costs. By covering the external walls they protect them from direct sunlight and rain. The walls can, therefore, frequently be built with mud bricks, which reduce the costs and insulate the house better than other materials. Because in low cost houses the rooms are few and small, many domestic functions have to take place in the courtyard.

65. Not only houses but settlements and the entire programme we propose, embody the maximum of flexibility and freedom of choice. In the programme as a whole, and in every settlement, people should be able to choose a solution of their housing problems most appropriate for their needs. That is why we have provided solutions ranging from a developed plot, which may be appropriate for a family with little money but much idle labour, to a complete house built by the Government for a family with more money but little time or inclination to take part in the actual building. The number of possible alternatives should be multiplied by offering plots and houses of different sizes in every settlement. A family which has some funds can then choose, for instance, between paying for a small plot with a nucleus house, and obtaining a larger plot and building its own house. Different means of payment also need to be provided, varying from a larger immediate payment for the family with some savings but no fixed income, to a small immediate payment for the family with small savings but an assured income. By combining different sizes of plots and houses, different degrees of government assistance and methods of financing, each family should be enabled to find the appropriate solution to its housing problems, and the flexibility provided in the design of each unit will permit the occupants to expand or alter the house at a later time.

## A REFUGEE HOUSING AND SETTLEMENTS PROGRAMME

66. The programme for refugees should be an integral part of the public housing programme, with a few exceptions justified by the existence of a large number of refugees who are still homeless or very poorly housed. Had the public housing programme been

larger, or the number of refugees smaller, we need not have presented a separate refugee programme. In the existing situation we believe that the refugees' rights to housing will be better served if we consider their programme separately.

67. We hope that the present refugee programme will be the last special refugees programme for the country. By 1960, the number of homeless refugees will have been considerably reduced and the public housing programme will be larger. In addition, it will be possible to adjust the future programme more accurately to the needs of particular areas and groups, after taking account of any special needs of refugees. The various departments will have completed their survey and will be able to draft one public housing programme in which the needs will be expressed and proposals will be made by provinces, regions, districts, and major towns, based on the number of homeless people and their division by classes, areas of origin and professions. The national programme will not need to distinguish between different types of needs, but only between localities with different degrees of need. The executing authorities also will be able to allocate accommodation when ready, more on the basis of individual needs than on the basis of origin.

68. The public and refugee programmes differ in the division of the total amount of building effort between different types of scheme : the special conditions and needs of the refugees at present lead us to [illegible] conclusion that different types of accommodation—plots, nucleus houses, building materials, complete houses—need to be included in a refugee programme in proportions different from those proposed in the public housing programme. The two programmes differ also because of the existence of some special refugee settlements : special measures had to be applied in order to complete them as soon as possible.

69. The existence of homeless people is not the only serious aspect of the refugee housing situation. Even those refugees who have been provided with a house often live under poor and unhealthy conditions. With few exceptions refugee settlements have no drainage, little water, and practically no paved streets, and in some cases every rain storm causes serious drainage problems ; conditions are such that cleanliness is impossible. A refugee housing programme should ameliorate these conditions, but we do not believe it reasonable to leave other people homeless, so as to concentrate on improving the conditions of all poorly-housed refugees. Moreover, the improvement of existing settlements in many cases may cost more than the creation of new settlements, because of the very poor planning of many refugee colonies. Though we propose to concentrate mainly on new settlements, we suggest the following means for improving the existing ones.

70. Conditions in some of them are so bad that, despite the generally low priority of these projects, minor assistance must be given for such improvements as a sewer or a drain, a water main, roofing materials, or a paved street. Funds should be spent mainly on materials, equipment, and technical assistance for those settlements which are willing to contribute at least their labour in order to remove critical short-comings. People will gain experience with self-help, and projects can be carried out with a government contribution on a fraction of the amount otherwise required. With a few exceptions, this approach requires guidance and inspiration from outside, and we recommend that social workers should co-operate closely with the Housing and Settlements Departments in carrying out this scheme. It would be even better if help were available from urban community development projects operating in or close to areas assisted under this scheme. This scheme will have to continue for many years, until old and unsatisfactory refugee settlements have been improved or eliminated. We recommend that special sections of the Housing and Settlements Departments should be organised to handle this problem. They would need architects, engineers and social workers, and could begin work on the worst

refugee settlements, later dealing with all slum areas which cannot be eliminated quickly. They could either be part of the Housing and Settlements Departments or a joint venture of the Departments of Housing and Settlements and Social Welfare.

71. The satellite towns which were started by the former Punjab Government are different from other settlements. They are well built, with due regard to public health problems, and present no general need for major improvements. What is necessary is to alter somewhat certain of their arrangements, such as access roads, service roads and market places, and to complete all the projects in order that physically and technically they should become self-contained. We have included the estimated cost in the Plan. This work would include the provision of some industrial and commercial sites for factories to provide work for the inhabitants wherever local employment opportunities were inadequate. This scheme would require a detailed analysis of every satellite town to determine its most urgent problems and deficiencies, and to prepare a programme. The goal should be to turn these satellites, as far as possible, into self-contained urban communities. This requires changes in the initial plans. In some cases many expansive plots cannot be justified, and small plots are needed in larger numbers. In others, firms will have to be induced to locate enterprises in or near the satellites. The studies should be first social and economic and then technical. In the first year, work would continue on unfinished projects and plans prepared for execution in the second and third years, so that by the fourth year this scheme would be completed. The Urban development authorities could prepare and carry out this programme.

72. The following figures summarise our proposals for special efforts to provide housing for refugees :

| | |
|---|---|
| New settlements ... ... ... ... ... ... | 100,000 plots. |

Action will be taken as follows on 43,750 of these 100,000 Plots :

| | |
|---|---|
| Self-help housing building materials ... ... ... ... | 15,000 houses |
| Construction of nucleus houses ... ... ... ... ... | 25,000 nuclei |
| Construction of houses ... ... ... ... ... ... | 3,000 lower cost.<br>750 higher cost. |

73. In addition to the housing plots, we provide also in the Plan for 5,000 small shops in specially designed bazars. These shops, costing about Rs. 1,000 each, could be rented or sold in due course to refugees to provide employment for them. Many of the 7,500 shops to be built under the public housing programme could also be assigned to refugees, so that up to 12,500 new shops could be made available to refugees or other groups which the Government might want to assist.

74. The schemes to build new houses for refugees should be carried out together with the public housing programme and without any discrimination between their inhabitants. We propose that the numbers, types, and location of house needed by special groups like refugees and civil servants should be assessed ; the needs of the general public should be worked out by the Housing and Settlements Departments in co-operation with the Ministries of Industries and other Ministries concerned, on the basis of expected economic development and the trend of population. On the basis of the total estimated needs, it could be decided how many plots and houses of the overall programme should be allocated to any district and city, and how many should be allocated to the general public and refugees in each location. The programme would then be handled by the planners in charge of an area as a single housing programme. The planners would base their individual

schemes on the occupations and earnings of the prospective occupants. Then the appropriate number of plots or houses will be assigned to the public in general and to special groups like civil servants and refugees, without any attempt at the physical separation of these groups.

### Industrial workers' housing

75. Housing for industrial workers is a special problem for which clear policies have to be enunciated. As a general principle, we recommend that the government should not endorse any policy of providing houses for workers separately from the rest of the community. Such a policy would be inimical to the development of integrated communities. Nor is it desirable to hold the employers responsible for providing houses for their employees. Employer-owned housing has led to exploitation of labour , and has been abandoned in many countries. Industrialists could well assists and subsidise, but not own the workers' houses. It is not only the industrial workers who need houses near the factories but many other groups, such as shopkeepers, personal servants, and transport workers. There would be many others who would like to live in settlements close to industries for one reason or another, and there is no justification for debarring them.

76. Most of the new settlements we have recommended will be created in urban areas which are growing rapidly and which are usually also the scene of rapid industrial development. The public housing programme as a whole will contribute substantially to housing the industrial workers, and a major criterion for the selection of sites for new settlements will be their proximity to new industrial establishments. The total number of workers in industrial establishments employing more than 20 workers is estimated at 400,000 and is expected to increase to about 600,000 by 1960. Many of the present workers may already be well-housed. We propose, however, that approximately 130,000 plots and a corresponding number of houses of the new settlements should be located close to existing industrial areas. In addition, houses will continue to be built, as they have been hitherto, by the best paid workers on their own initiative.

77. We recognise that the public housing programme proposed may not have an immediate impact on the housing conditions of workers. It will take some time to develop the programme and then to develop plots and built enough houses. Possibly also, even after the national housing programme gets into full swing, it may not be able to overtake the industrial programmes. For these reasons we recommend that present programme for the construction of houses by the employers for their workers should not be reduced in any way until the national housing programme is adequate to meet their requirements, even though the general policy must be to leave house building to individuals and the Government. The government should continue to assist the industrialists in every way to speed up their programme.

78. When necessary, the government should extend technical advice and financial aid to industrial employers in such form as loans recoverable in 10 years. Loans should be restricted, however, to cases where the Government is unable to create the necessary settlements near an industrial area and only if the industries will comply fully with government requirement for standards for housing and settlements. Not every industry should be allowed to create a special settlement for its workers, since this would mean very small settlements and the creation of obstacles to the later formation of bigger settlements, which alone can afford to provide the necessary community services. Co-operation between conveniently situated industries should be a precondition to a government loan. Such loans should be regarded as an emergency measure, to be continued until the national housing programme is able fully to meet the requirements of industrial workers.

79. Industrial trading estates are a special case where workers' housing should be combined with industrial development. Such estates should be developed to include the necessary community facilities. It is reasonable that the industries should contribute to the cost of the settlements for workers. The cost of the complete development of the land for both industrial buildings and workers' houses might be charged to the industries.

### Miners' Housing

80. Miners' housing is similar to that for industrial workers, except that in most cases the mines are away from major urban settlements and must therefore be served by special settlements. We believe it would be a sound policy for the government to create settlements for the miners under the public housing programme, especially if the mines are expected to have a long enough working life to justify a permanent settlement. In all respects the approach we have suggested for housing industrial workers holds good here also. Until the government is able to create settlements, it is reasonable to provide loans to mine-owners of good standing to cover the cost of land and land development. The owners would develop the land to government standards and build a number of houses, as well as make plots available to miners who would like to buil their own houses.

### Rural workers' housing

81. Rural workers are another special category of people requiring houses. Their problems are more difficult both because their settlements are widely scattered and because they generally have no land of their own, which puts the ownership of a permanent house beyond their reach. Therefore, the best that can be aimed at for rural workers is the establishment and enforcement of standards of housing to be provided by land-owners. In order to encourage the creation of better houses for them we recommend that an experiment be started by way of loans to landlords under the project for rural housing and community facilities. The loans should be mainly in the form of materials not available in the area and only on the condition that the materials will be used immediately for the creation of the appropriate types of houses. Specific provision about the use of such funds, and about the land-owners' obligations under the programme, should be prepared before any expenditure is made. Schemes could then be made and implemented in several areas on a small-scale experimental basis, with the co-operation of Village AID administration and the district officers.

## GOVERNMENT-OWNED HOUSES

82. The special housing requirements of those civil servants who are liable to frequent transfers from one place to another can best be met by government-owned houses. The needs of the various administrative centres for houses of different types should be estimated, using the criterion that the house should not cost more than twice the occupant's annual income. Special efforts should be made, however, to ensure that settlements do not grow up as colonies of civil servants only. We have provided in the Plan for the construction of 5,000 houses for civil servants, at an average cost of Rs. 10,000, ranging from Rs. 6,000 to Rs. 18,000 though occasionally including both more and less expensive houses.

## EFFECTS AND RETURN OF THE GOVERNMENT PROGRAMME

83. The total government programme we recommend would yield the following results :

(*a*) Construction of 53,500 rural tube wells and making other improvements in rural settlements ;

(*b*) Making improvements in existing cities ;

(*c*) Providing community facilities for several million people in existing towns and cities ;

(*d*) Preparation of 250,000 plots in new settlements, of which 100,000 will be for refugees ;

(*e*) Provision of building materials for self-help housing for 35,000 families, including 15,000 refugees ;

(*f*) Building 80,000 nucleus houses, including 25,000 for refugees ; and

(*g*) Building 27,250 houses, of which 17,000 will be low-cost houses (including 3,000 for refugees), 5,250 will be higher-cost houses (including 750 for refugees), and 5,000 will be government-owned.

Out of 250,000 plots to be prepared, the Government would assist with house construction on 142,250. People would build their own houses without government assistance on the remainder.

84. Of the total public expenditure in this programme, a large part would be recoverable in the course of time. Expenditures on the general items—surveys, designs, education, etc. would not be recoverable. In the scheme for rural housing and community facilities the amounts for rural housing, but not these for community facilities, would be recoverable. During the Plan period the funds spent on the improvement of existing towns would not be recoverable. In the future, major amounts would be spent on slum clearance; by appropriate policies and careful administration they might be made yield a profit. A large part of the funds spent on community facilities in existing towns, especially in the big cities, could be recoverable through water rates and other charges.

85. Out of the amounts spent on the creation of new settlements under the general programme, only those for plots allocated to families with higher incomes should be recovered. Land development costs are essentially costs of urbanisation and industrialisation which should be borne, in the case of poor families, by the Government or industry, but nearly half the expenditure on land development might be recovered from the richer families. The cost of materials to be given for self-help housing should be partly recoverable, as should the cost of nucleus houses ; in all other cases the total cost of the houses should be recovered in instalments extending over a period of years. We estimate that ultimately about half the total expenditure on public housing would be recoverable, and about the same proportion in the refugee programme. The Government is now following a policy of providing housing on a hire-purchase basis, which, if firmly pursued, will yield substantial returns. The schemes for the amelioration of existing conditions in refugee settlements will not yield any money return to the government. Estimates of recoverable amounts are based on long-term, not on immediate possibilities. We consider that efforts should be made to recover as large an amount as possible in order to continue expanding the programme to the benefit of the community. The Housing and Settlements Departments should consider and introduce a plan for making recoveries, if necessary, on the advice of an expert committee ; this plan should include also proposals for making the best use of the Government's House Building Finance Corporation. The activities of the Corporation will have to be co-ordinated with housing and settlements development programme. A part of the funds provided in the Plan might be channelled through this or similar agencies.

## PRIVATE INVESTMENT

86. It is one of the purposes of the Government programme for housing and settlements to influence private investments in housing and its standards. It should encourage a more effective use of private funds on the most urgent purposes. Of the 250,000

units in the Government programme only 27,250 units will involve complete houses and another 115,000 units government assistance in the form of nucleus houses or building materials. The remaining 107,750 units will involve building plots, supplied with water, sewerage and other facilities which are an esential pre-requisite for the development of private housing. Substantial private investment of labour, material and funds will be required to make full use of these plots.

87. In addition private investment in housing development outside the government programme will undoubtedly continue. The bulk of funds for private investment will come from private resources. We have estimated that total private investment during the Plan period will amount to some Rs. 3,600 million (360 crores). Of this up to one quarter may be applied to construction, mostly for residential housing. Investment in houses is, however, not restricted to monetary investment. A large part of the 1500-2000 million rupees of non-monetary investment, which we estimate might take place during the Plan period, will be in housing. The individual labour invested in houses, particularly in rural areas, is only part of total non-monetary investment, since much of the material required for house building is also locally available without involving a monetary transaction. Together the private monetary and non-monetary investment in housing should be adequate to enable people to take advantage of the opportunities for investment in better housing offered by the Government programme, which will provide the basic foundations to a sound housing development programme.

## ADMINISTRATIVE CENTRES

88. The need for administrative centres is a major element in the formation and location of settlements. In this country, up to a few decades ago, administration was actually the main and sometimes the only factor influencing the formation of urban centres. The lack of industry and organised communications left the initiative for every major action in this respect to the Government. In the earlier years the city in which the ruler held his court and kept his administration attracted the merchants and became the commercial centre. Later the selection of towns for military administration and garrison towns had the same effects.

89. The situation has changed and new factors have come into being, but administration is still a great factor in the size and location of towns in this country, with commerce and industry developed to a high degree only at the ports as yet. Administrative centres include the Federal Capital, the Provincial Capitals, Divisional and District headquarters, and army depots. New problems arise for every such centre, from the location of the Federal Capital to the transfer of Rangamati, the district headquarters of the Chittagong Hill Tracts which will be flooded by the reservoir behind the Karnafuli dam. Smaller towns also change as they become administrative headquarters, perhaps, of new functions like Village AID. The import of these administrative changes is already very great and will be even greater in the future. Some of the changes follow a pre-conceived plan, like the creation of a capital, but others take place in a gradual and imperceptible way. Rajshahi, in East Pakistan for example, due largely to the University being there, attracts inspectors and other civil servants working in nearby areas, and is gradually acquiring greater importance as an administrative centre.

90. It is necessary to meet the problems of administrative centres in a rational way, but this cannot be done until the administrative organisation has settled down and taken clear shape. Premature action in constructing special buildings will lead to waste. We propose that a committee be set up to judge the role of each administrative centre and its needs for development in West Pakistan. The Committee would be asked to report on the existing government-owned buildings, their sites and their value (separately for lands and

buildings) and the total requirements of the new administrative machinery in building space. In order to avoid unreasonable or unbalanced estimates, the Committee would have to rely largely on estimates based on the number of employees working in every unit, their functions and rank as the key to the space required. A plan for each centre would then have to be made by the town planners and architects, based on judgements about whether the old buildings should be kept and others rented, or whether it would be better to create new administrative centres in or out of the cities.

91. Because the required surveys, plans and decisions will take time if they are to be sound, and because the programme we propose is already over-burdened with construction work, we recommend that as far as possible, construction on the new administrative centres should be delayed until after 1960. Certain exceptions will be necessary. It is, however, very desirable to take time for a complete economic, geographical, social and technical study of the programme for administrative centres and for its approval by the Government. We have provided in the Plan Rs. 10 million for the preparatory work (survey-programme-design) and the acquisition of land, and it may be necessary to embark on greater expenditures within the Plan Period when the immediate construction requirements are known.

92. A new Federal Capital might cost about Rs. 500 million in all, and other administrative centres together might cost another Rs. 500 million. Such a construction programme is feasible if spread over 20 or more years. A project of this size, providing administrative centres constructed for efficient operation, would mean substantial long-run economies in the country's administration. But such centres can also be a failure, either because of high construction cost or, what is worse, because they do not function efficiently or economically. This would be a real disaster for a poor country which must rely heavily on the rapid and consistent improvement of its administration. A period of three or four years spent in careful preparation would not be too long to avoid such catastrophies.

## ADMINISTRATION AND IMPLEMENTATION

93. The efforts made up to now in dealing with the housing and settlements problems have not been well co-ordinated. The largest programme, for refugees' houses, was planned in the Ministry of Refugees and Rehabilitation and executed by a variety of agencies like Public Works Departments, District Engineers, and local bodies. Projects such as houses for groups of civil servants were also executed by Public Works Departments, although they may have been conceived by other Municipalities and by the Central Government directly, in Karachi through a special Karachi Joint Water Board. Several departments and services, such as the Railways, Posts and Telegraphs, Port Authorities, and Irrigation Boards, carry out independent housing programmes. There is no authority in general charge of either housing or settlements and many unco-ordinated efforts take place, often at unnecessary cost, and to the detriment of the national interest or the interests of specific localities.

94. The need for co-ordinated action in the field of housing and settlements is not a new problem ; several authorities have already envisaged some co-ordination or proposed the creation of a Ministry for Housing. They did not, however, conceive of an agency in broad terms responsible for carrying out all public functions related to housing and settlements. Other countries which started government housing activities in an unco-ordinated way have, during the last fifteen years, reached the conclusion that a special department was necessary, and to-day many countries carrying out public housing programmes have one department responsible for all work connected with housing and settlements. For this country, which faces colossal housing problems and will have to carry out substantial programmes, covering nearly ten per cent of public investment, a special agency for housing

is at least equally necessary. The size of the programme and its complex problems require a separate Ministry for Housing and Settlements. But because there is no major organisation specialising in housing, no traditions in housing projects, and no cadre of experts in this field, we propose a modest beginning with a Department of Housing and Settlements. As the housing activities increase and the programme develops, it might with advantage be made a full Ministry of Housing and Settlements. The proposed Housing and Settlements Department in the Central Government might initially be put under a single Ministry with Social Welfare, Health, and Education, reflecting the fact that housing is not purely a technical subject, but is concerned with the implementation of social and economic policies through technical projects.

95. In the Provinces also the appropriate place for the Housing and Settlements Departments would seem to be either in a Ministry of Social Welfare, or in the Ministry of Local Self-Government. Since practically fifty per cent of the funds under the programme we propose would be spent on community facilities and land development, with which local authorities will be directly concerned, the connection of housing with local self-government is administratively as close as it is functionally with social welfare.

96. The Housing and Settlements Departments of the Centre and the Provinces would have to carry out the following tasks :

(*a*) Analysing the overall housing and settlements problems and the requirements of the country ;

(*b*) Planning and programming in order to meet those problems at the national or the provincial level ;

(*c*) Evaluating and incorporating regional or local projects in the national plans ;

(*d*) Co-ordinating the execution of the total programme ; and

(*e*) Executing the programmes directly or by selected agencies, such as local bodies and Public Works Departments.

97. Of all these tasks at present only one, the execution of housing projects, is handled by government departments, and that only partially with no co-ordination. These Departments would transfer their housing responsibilities gradually to the proposed Housing and Settlements Departments. This might require a number of years, and means that the whole services and staff would be transferred to the new departments. We recommend that as soon as the new departments are established, committees of senior officials concerned should be established to arrange for the gradual transfer of responsibilities. The new departments would have to use the services of, and co-operate with, many agencies. Eventually advisory boards with representatives of all those agencies should be set up. At the provincial level co-operation would have to be particularly close with special agencies in charge of certain areas, especially if, like the Thal Development Authority, they were responsible for colonisation. In these cases we recommend that the Housing and Settlement Departments should second at least one expert to each of these authorities to cooperate in preparing the local plans, and to advise on the problems of settlements. This task would be very difficult and men with experience are difficult to find. The colonisation authorities would have to remain in close contact with Provincial and national planners, and turn to them for types of houses, villages and urban communities, and patterns for regional development.

98. At the local level, the Housing and Settlements Department would have to cooperate as much as possible with local authorities and other bodies, such as industrial or trading estates. We recommend that the Departments should issue manuals of advice to all local authorities on urban development plans. The Departments would have to study and carry out projects urgent or important for experimental purposes in areas wher

Village AID did not operate. They would also assist the Village AID administration in carrying out their own programme in the field of housing and settlements. This assistance would take the form of participation in advisory boards, and of making available technical experts for planning and executing schemes, and for training Village AID personnel. Special handbooks would be needed with standard designs and instructions for rural houses, community facilities, community controls, schools and health centres, which could be used by the Village AID programme.

99. The implementation of the housing and settlements programme will involve difficult problems. One is the shortage of qualified and experienced men to develop plans and design houses. The country's engineers have constructed houses in large numbers and can continue to do so; the major problem is to improve the designs and policies according to which they construct them. This will require expert assistance ; the details of the designs could be worked out by arrangement with offices in foreign countries. It might be difficult to obtain soon enough the services of planners and designers of the type needed ; those who are not only competent, but also willing and able to use local materials and to train the country's own technicians. Possibly the programme we recommend cannot be carried out as rapidly as proposed. If serious delays in planning and design work impede the plan in the first years it may be possible to offset the effects to some extent by speeding up construction in the last two years of the Plan period.

## A CADRE OF HOUSING AND SETTLEMENT OFFICERS

100. The programme we propose for housing and settlements embodies much preparatory work, and will continue and expand in future as resources increase. In economically advanced countries the provision of housing and community facilities is an important responsibility of public authorities. For arranging, supervising and executing a continuing programme of increasing proportions, it is in our view necessary to organise cadres of housing and settlements officers and other personnel. It has been the general experience that engineers employed in the traditional civil works departments do not fit well in the Housing and Settlements Departments. The approach needed for housing and settlements work is of a different kind : it has to be one of readiness to make experiments with new ideas combined with keenness to use local materials ; to change the designs according to climatic and social conditions which vary from place to place, and to keep the size of the people's resources constantly in view. Many countries which have undertaken organised programmes of housing and settlements have found it expedient to establish separate cadres consisting of architects, civil and sanitary engineers as well as experts in the social and economic fields and to employ appropriate private agencies.

101. We suggest that similar action should be taken in this country. Hitherto, such schemes as have figured in the programmes of the Central and Provincial Governments have been framed and executed by engineers of Buildings and Roads Departments and of local bodies. Without the development of special corps of trained personnel to deal with the special problems and requirements of housing and settlements programmes, there would be dangers of greater delays, inconsistencies, and costs. We recommend that the needed cadres of trained technical personnel should be established. Their salary scales, prospects of promotion, and other conditions of service should be comparable with those of engineers in the existing civil works departments. Immediately, the agency would necessarily consist of architects, engineers and other experts seconded from existing departments, but those who are especially interested in their new duties should be absorbed permanently. Most of them would need special instruction on the problems of housing and settlements. Foreign experts should be engaged on short-period contracts. Young civil and sanitary engineers as well as architects should be recruited and trained for the new Department. Simultaneously, steps should be taken to assist in the organisation and development of

private agencies of architects and contractors. The formation of schools of architecture and settlement planning which have been included in the Plan will pave the way for this development.

102. Table 2 shows the public expenditures we estimate to be required for the various projects in the programme we recommed. Table 3 indicates how this expenditure would be divided year by year among the Provincial Governments, Karachi, and the Centre. Table 4 shows the foreign exchange cost of the programme year by year.

### TABLE 2

*Estimated public expenditure on housing and settlements*, 1955—60

| | | (Million rupees) |
|---|---|---|
| *Preparatory* | | |
| Survey of needs and conditions | | 1·2 |
| Topographical survey | | 4·0 |
| Preparation of policies | | 1·5 |
| Designing of projects | | 6·0 |
| Experimentation | | 1·5 |
| Education programme | | 7·0 |
| Building materials studies | | 1·0 |
| Total | | 22·2 |
| *Public housing projects* | | |
| Rural housing and community facilities : | | |
| Water supply | 36·5 | ... |
| Other projects | 6·0 | ... |
| | | 42·5 |
| Improvement of existing towns | | 10·0 |
| Community facilities in existing towns : | | |
| Karachi water supply | 70·0 | |
| Dacca water supply | 5·0 | |
| Chittagong water supply | 7·0 | |
| Other towns water supply | 20·0 | |
| Karachi sewerage and drainage | 25·0 | |
| Dacca sewerage and drainage | 26·5 | |
| Chittagong sewerage | 10·0 | |
| Other towns sewerage and drainage | 3·0 | |
| | | 166·5 |
| Provision of plots in new settlements | | 170·0 |
| Self-help housing | | 14·0 |
| Construction of nucleus houses | | 68·0 |
| Construction of low-cost houses | | 35·0 |
| Construction of higher-cost houses | | 18·0 |
| Total | | 524·0 |

TABLE 2—*contd.*

(Million rupees)

| | |
|---|---|
| *Refugee housing projects* | |
| Amelioration of conditions ... ... ... ... ... | 5·0 |
| Completion of present programmes ... ... ... ... | 10·0 |
| Provision of plots in new settlements ... ... ... ... | 100·0 |
| Self-help housing ... ... ... ... ... ... | 10·0 |
| Construction of nucleus houses ... ... ... ... ... | 30·0 |
| Construction of low-cost houses ... ... ... ... ... | 7·0 |
| Construction of higher-cost houses ... ... ... ... | 3·0 |
| Total ... ... | 165·0 |
| Government-owned houses ... ... ... ... ... | 50·0 |
| Administrative centres ... ... ... ... ... ... | 10·0 |
| Grand Total ... ... | 771·2 |

### TABLE 3

*Expenditure on the housing and settlements programme by executing authorities and by years,* 1955—60

(Million rupees)

| Units | 1955-56 | 1956-57 | 1957-58 | 1958-59 | 1959-60 | Total, 1955—60 |
|---|---|---|---|---|---|---|
| East Pakistan ... ... ... | 11·24 | 39·18 | 69·31 | 83·18 | 92·09 | 295·00 |
| West Pakistan ... ... ... | 19·44 | 41·98 | 64·11 | 76·53 | 83·84 | 285·90 |
| Karachi ... ... ... ... | 13·30 | 23·20 | 28·75 | 34·08 | 35·77 | 135·10 |
| Centre ... ... ... ... | 1·44 | 7·82 | 12·88 | 15·64 | 17·42 | 55·20 |
| Total ... | 45·42 | 112·18 | 175·05 | 209·43 | 229·12 | 771·20 |

### TABLE 4

### *Internal and foreign expenditure on housing and settlements programme, 1955—60*

(Million rupees)

| Units | 1955-56 | 1956-57 | 1957-58 | 1958-59 | 1959-60 | Total, 1955—60 |
|---|---|---|---|---|---|---|
| Internal expenditure ... ... | 29·79 | 63·28 | 104·78 | 126·21 | 137·94 | 462·00 |
| Foreign expenditure ... ... | 15·63 | 48·90 | 70·27 | 83·22 | 91·18 | 309·20 |
| Total ... | 45·42 | 112·18 | 175·05 | 209·43 | 229·12 | 771·20 |

# CHAPTER 26

# EDUCATION AND TRAINING

## I

### Introductory

1. A programme for the improvement and expansion of education is a vital part of the national development Plan. Not only is it necessary to enlarge rapidly the number of trained persons in the country in order to carry out the various development schemes and to provide the specialised and technical services needed to conduct the activities of a progressive nation, but also the provision of educational opportunities is one of the primary goals of a society believing in equality of opportunity and the paramount worth of the individual.

### Development of Education since Independence

2. Immediately on gaining Independence, the country was faced with staggering problems. In education the immediate task was to save the system from collapse, a task which was made difficult by the loss of supervisory and teaching personnel. It was nevertheless performed successfully : schools, colleges and universities were maintained and most of the abandoned institutions were revived and reconstructed. Since then there has been a considerable increase in the number of educational institutions and the enrolment. Public expenditures on education in 1953-54 were twice as much as in 1948-49, the first full year after Independence. Whereas in 1948-49 expenditures on Education represented 5·3 per cent of the total government expenditures, in 1953-54 they represented 7·1 per cent of a much larger total.

3. *Primary Education.* The number of schools increased from 38,122 to 41,651. The increase in West Pakistan was 6,246 ; but it was partially offset by a decrease of 2,717 in East Pakistan.

Enrolment increased from 3,643,000 to 4,962,000 ; about 50·3 per cent of the children between the ages of six and eleven were in schools in 1953-54.

The length of the primary course in most parts of the country has been extended from four to five years.

Expenditures increased from Rs. 3·1 crores to Rs. 5·7 crores.

4. *Secondary Education.* Although the number of lower middle schools decreased, the number of high schools (class 6—10) increased from 1,885 to 2,383.

Enrolment increased from 916,000 to 1,171,000, indicating that the rise in the enrolment of secondary schools has kept pace with primary school enrolment.

Expenditures on secondary education increased from Rs. 1·3 crores to Rs. 2·4 crores.

5. *Teacher Education.* Although the total number of primary teacher training institutions decreased (chiefly through the closing down of poorly equipped schools) from 125 to 99, the annual enrolment increased from 6,145 to 7,500.

The number of trained primary school teachers increased from 35,000 to 60,000.

The number of institutions training secondary school teachers doubled from eleven to twenty-two, which number includes six institutions training graduate teachers and two new courses of study for intermediate passed students.

The total number of secondary school teachers being trained annually increased from 785 to 1,500.

The number of trained secondary school teachers increased from 17,500 to 22,500.

6. *College Education.* The number of non-professional colleges increased from 90 to 132, including 39 intermediate colleges and 12 colleges offering the master's degree.

The number of students studying in colleges increased from 36,000 to 60,000.

7. *Universities.* Three new universities have been established since Independence : the Universities of Peshawar, Karachi and Rajshahi.

Punjab University has opened seven new departments.

Dacca University has opened six new departments.

Sind University, created a few months before Independence, now offers post-graduate work in fourteen subjects.

Peshawar University, established in 1950, now has twenty-five departments of study.

Karachi University, established in 1951, has organized three faculties with seven departments of study.

Rajshahi University, established in 1953, offers post-graduate instruction in ten subjects.

Government expenditures on the colleges and the universities increased from Rs. 61 lakhs to Rs. 2·3 crores.

8. *Technical Education.* No organised system of technical education was in effect in 1947 ; the situation has changed since then. According to the recommendation of the Council of Technical Education, a Technical High School was established at Karachi in 1951. Preparation of the plans of two polytechnic institutions, one at Karachi and the other at Dacca, was begun in 1953. These institutions made their first admissions in 1955. In addition, an increasing but undetermined number of non-standardized trade, technical, and vocational schools has been springing up.

9. *Professional education.* In 1948-49 there were three agricultural colleges and one animal husbandry college. By 1953-54 the number of agricultural colleges increased to four and a new college of animal husbandry was established. A college of forestry was also opened.

Medical colleges have increased from three to six and medical schools from six to seven; 200 physicians and surgeons have been trained abroad.

There were three engineering colleges. A fourth college of engineering has been established at Peshawar, and the total enrolment in engineering colleges has increased from 1,460 to 2,050.

10. Major changes in education are summarised in Table 1 below :

### TABLE 1

*Changes in Education, 1948-49 to 1953-54*

| Item | 1948-49 | 1953-54 |
|---|---|---|
| *Primary Schools* | | |
| Number of schools | 38,122 | 41,651 |
| Enrolment | 3,643,000 | 4,962,000 |
| Public Expenditures | Rs. 30,549,000 | Rs. 56,849,000 |
| *Secondary Schools* | | |
| Number of schools | 6,275 | 5,551 |
| Enrolment | 916,000 | 1,171,000 |
| Public Expenditures | Rs. 12,601,000 | Rs. 23,558,000 |
| NOTE.—Decrease in the number of schools is due to the down grading of weak lower middle schools. | | |
| *Colleges and Universities* | | |
| Number of non-professional colleges | 90 | 132 |
| Number of universities | 3 | 6 |
| Enrolment (excluding universities) | 36,000 | 60,000 |
| Public Expenditures | Rs. 6,111,000 | Rs. 22,833,000 |
| *Teacher training* | | |
| Primary Teachers' Training Institutions | 125 | 99 |
| Annual enrolment | 6,145 | 7,500 |
| Total number of trained primary school teachers | 35,000 | 60,000 |
| Institutions for training secondary school teachers | 11 | 22 |
| Annual enrolment | 785 | 1,500 |
| Total number of trained secondary school teachers | 17,500 | 22,500 |
| *Other expenditures on education* | | |
| Administration, inspection, teacher training, works etc. | Rs. 13,033,000 | Rs. 26,888,000 |
| Total expenditures by Central and Provincial Governments | Rs. 62,294,000 | Rs. 130,138,000 |
| Percentage of total revenue expenditures | 5·3 | 7·1 |

This table includes the costs of the engineering colleges, but does not include expenditures on medical, agricultural, animal husbandry, or industrial education which are not carried under " education " in the provincial budgets.

**Plans for Education**

11. The country found itself at Independence the inheritor of an educational system installed a hundred years earlier by a foreign government and founded upon political, social, economic and cultural concepts totally different from those of an independent state. The task was not merely to expand the existing system but to give it a new orientation in keeping with the country's cultural and economic traditions and aspirations. This task was started immediately after Independence with the convening of the first educational conference in November 1947 to consider the reorganisation of the educational system.

12. The Quaid-e-Azam's message to the conference stated the task before it and the educational goal of the country in the following words :

" The importance of education and the right type of education, cannot be over-emphasised. Under foreign rule for over a century, sufficient attention has not been paid to the education of our people and if we are to make a real, speedy and substantial progress we must earnestly tackle this question and bring our educational policy and programme on the lines suited to the genius of the people, consonant with our history and culture and having regard to the modern conditions and vast developments that have taken place all over the world". " There is no doubt that the future of our State will and must greatly depend on the type of education we give to our children and the way in which we bring them up as future citizens of Pakistan. Education does not merely mean academic education. There is immediate and urgent need for giving scientific and technical education to our people in order to build up our future economic life and to see that our people take to science, commerce, trade and, particularly, well-planned industries. We should not forget that we have to compete with the world which is moving very fast in this direction".

" At the same time, we have to build up the character of our future generation. We should try, by sound education, to instil into them the highest sense of honour, integrity, responsibility and selfless service to the nation. We have to see that they are fully qualified and equipped to play their part in the various branches of national life in a manner which will do honour to Pakistan ".

13. This first conference dealt with practically all facets of education. Among its major recommendations were the following :

(*a*) The educational system should be inspired by the Islamic ideology, emphasising among many of its characteristics those of universal brotherhood, tolerance and justice.

(*b*) Free and compulsory education should be introduced for a period of five years, which should be gradually raised to eight years.

(*c*) Primary schools could be co-educational or otherwise according to local needs.

(*d*) A comprehensive scheme should be prepared for the re-organisation of technical education suited to the economic needs of the country and the peculiar genius of our people.

The Conference also suggested that several studies be undertaken, including an analysis of scientific research and technical education, a critical review of the examination system, and the collection of statistical data by the Provinces.

14. The deliberations and recommendations of the conference served to stimulate and guide the task of rebuilding education in the country. The basic policies enunciated by the Conference were accepted by the Central, Provincial and State Governments, Soon thereafter the Central and Provincial Governments set up committees of experts to review and revise primary and middle school syllabi.

15. Education, under the constitution, is a Provincial subject. The role of the Centre is to co-ordinate educational policies throughout the country and to guide and stimulate planning for educational development on a national basis. To assist in this task it brought into being several bodies recommended by the Conference :

(a) *The Advisory Board of Education* is composed of the Minister of Education in the Central Government, Education Ministers of the Provinces, Vice-Chancellors of the Universities, Chairmen of the Boards of Secondary Education, Directors of Public Instruction, and eleven other prominent educationists. The Board has appointed many committees to examine national requirements in various sectors of education and most of its recommendations have been endorsed by Government.

(b) *The-Inter-University Board*, composed of the Vice-Chancellor and two other representatives from each university, has done a good deal to clarify many problems relating to higher education and to initiate a movement for improvements in educational standards.

(c) *The Council of Technical Education*, an *ad hoc* body, conducted through its committees a detailed survey of existing facilities and programmes and prepared a comprehensive scheme for the reorganisation and development of technical education in its various aspects, namely, engineering, agriculture and commerce.

16. The concepts, plans and schemes evolved by the above bodies and by many other official and non official groups, served as a basis for the Six-Year National Plan of Educational Development for Pakistan, issued in 1952. This plan was prepared by the Education Division of the Central Government in collaboration with Provincial and State Governments. The chief merit of this plan was its translation into money, buildings and people, of the educational job envisioned by the several advisory bodies an d groups. Unfortunately, it was not related to an overall plan for social and economic development based upon an economic analysis of resources. Consequently, it could not serve as a concrete plan of action. It has nevertheless proved to be a useful guide to the relative needs of the several phases and levels of education.

17. Underlying all these hopes and plans for education is the deep-seated urge to regenerate the high moral standards of Muslim society, as derived from and rooted in Islam. The Constitution of the Islamic Republic of Pakistan required the State to take steps " to enable the Muslims of Pakistan individually and collectively to order their lives in accordance with the Holy Quran and Sunnah ", and to endeavour " as respects the Muslims of Pakistan—

(a) to provide facilities whereby they may be enabled to understand the meaning of life according to the Holy Quran and Sunnah ;

(b) to make the teaching of the Holy Quran compulsory ; and

(c) to promote unity and the observance of Islamic moral standards."

Our state represents a dramatic effort reflecting the culmination of a historical process on the part of a people with a common culture to build an integrated democratic society which will measure up to their long-felt but hitherto subdued aspirations. Upon education falls the paramount task of developing these moral standards of integrity, self-discipline, industry, and sense of responsibility among the population without which democracy is but a mockery and culture a mere veneer. This task, above all else, calls for the strictest attention to the contents and quality of the educational process and to the intellectual and moral stature of our teachers.

## Nature of the Proposed Development Programme

18. On the basis of the plans for education referred to above, we have dealt with some of the major policies and summarised the most pressing needs of education, relating these needs to the total plan of development and the total resources available, and suggesting ways of implementing educational schemes which are of the highest priority. An analysis of the available information reveals large gaps and maladjustments in the growth of the educational system. For example, one-third of the primary teachers have had no training; many university departments are mere skeletons; no provision exists for research in education; failures have increased ominously, which proves that such facilities of staff and equipment as exist are not being used well. This assessment shows that most of the changes in education since Independence have been quantitative rather than qualitative. Our proposals are designed to achieve a better balance in the educational system and to encourage the qualitative changes suggested by educational authorities.

19. The Planning Board is not an education commission and we have not dealt exhaustively with all problems and requirements of education. The Board's scope is not limited by its terms of reference but by the fact that education is only one of the many subjects with which it is concerned.

20. Statistical data about education are not adequate for detailed planning and a programme for the systematic collection and analysis of such data does not exist. Although the figures in this report cannot be said to be complete or precise, we believe they are sufficiently correct to provide a true picture of the general situation.

21. The country's resources are too limited at the present time, both in trained personnel and in money, to meet all educational needs just as they are too limited to meet all needs in other areas of social and economical development. We have, therefore, had to adopt priorities. The priorities were designed, first, to obtain maximum results from the use of scarce resources; second, to ensure as perfect an integration as possible of the educational plan with the general development Plan; and, third, to achieve an equilibrium within the educational plan itself. Considering the field of education as a whole, the following order of priorities was selected :

(*a*) To arrange for the training of teachers to bring to a minimum adequate standard the staffing of the existing universities, colleges, and schools, and to provide, at the same standard for the staffing of such new educational facilities as may be opened during the Plan period and for facilities for research in educational psychology, methods of teaching, curricula, etc.

(*b*) To arrange for technical, vocational and commercial education in order to ensure that qualified personnel will be available to meet the requirements for skilled personnel of the general development Plan.

(*c*) To provide equipment, laboratories, buildings, research facilities, etc., to a minimum adequate standard for the colleges and universities, in order that suitable personnel may be available for responsible positions in all departments of life where the demands are continuously increasing with the increasing tempo of development.

(*d*) To bring existing schools to a minimum adequate standard in the matter of equipment and buildings, and to open new schools in areas which are relatively backward.

22. To summarise these priorities, it is necessary first, to consolidate, that is, to fill up the gaps and make up the qualitative deficiencies that exist in the present educational structure and secondly, having regard to the resources available, to make a modest expansion in the system. In addition to meeting existing needs this will provide the conditions necessary for rapid expansion and development in the future.

23. Educational objectives during the Plan period should be :

(*a*) The enrichment of primary education and, in fact all education so that instruction is pupil-centred and rooted for Muslims in the spirit of Islam. Such enrichment should precede the efforts, economically unattainable in a short period, for making primary education universal. We believe that free compulsory primary education is indispensable to our democratic society and economy but that a five-year period of reorientation is necessary to prepare the groundwork for its accomplishment, perhaps within fifteen years thereafter.

(*b*) The selective improvement of secondary and higher education with emphasis on the skills and leadership required to implement our plans of development. This improvement requires, chiefly, additions to the traditional liberal arts curricula of technical and scientific subjects, the provision of specialised staff and laboratory equipment, and the strengthening and extension of professional and technical courses.

## II

## PRIMARY EDUCATION

24. A system of universal primary education is imperative. Primary education is essential to prepare citizens for the discharge of their democratic and civic responsibilities and to provide them with equal opportunities for economic and cultural advancement. It is essential to the nation as a base for the entire structure of secondary and higher education from which will come leadership in all walks of life and support for technical development in agriculture and industry.

25. The Pakistan Education Conference of 1947 resolved that "free and compulsory primary education be introduced for a period of five years, which should be gradually raised to eight years". Since that time all Provinces have adopted plans to accomplish universal primary education, although these plans have been of varying length and uncertain progress. Universal free primary education is a major goal of national planning.

26. Very great obstacles will have to be overcome in reaching this goal. Nearly half the children of primary age are not in school; of those who now join primary schools, only two-thirds finish the fifth year in the part of the country with the best record; in other areas the proportion is as low as 15 per cent. Only about 60 per cent of the teachers are trained; it would require about 40,000 more trained teachers to staff the present schools adequately, and additional 120,000 for the new and expanded schools in a universal compulsory system. About 20,000 schools would have to be added. The annual expenditure on primary education in the country which was about 60 million rupees in 1954-55 would have to be about three times as much to provide for universal primary education at a reasonable standard. The economy of the country must expand considerably to absorb a cost of this magnitude.

27. Clearly some time will be required to overcome these obstacles—to train the teachers, construct the buildings, and develop the financial resources that will be needed. Nevertheless steady progress can and should be made and we have provided for this in

the development Plan as detailed below. Looking beyond the present Plan period, while no precise estimates can be made, we believe the country may reasonably hope to achieve a universal system of free and compulsory primary education in about twenty years.

## Objectives of Primary Education

28. It would be a mistake to concentrate attention exclusively on the physical and administrative task of providing a given number of schools,. The question of the kind and quality of schools desired is of even greater importance. The mere expansion of the present system would not be sufficient to meet the needs of the children, the expectations of the parents, and the requirements of the nation. The immediate task is to determine the nature of the primary education desired and to provide for that education.

29. Knowledge is highly regarded in Islam and its acquisition is a duty enjoined on all men and women. The Maktabs were the smallest teaching units in Muslim India before the days of British rule. These units, many of them co-educational, had a religious bias. Not a few were conducted in mosques. Perhaps of special significance was their emphasis upon the interests and aptitudes of the pupils. The individual child became a school class in himself, working at his own pace. Having finished at the Maktab, the child could proceed to a Madrassa for cultural and professional education, or to a guild for artisan or craft training. This indigenous system, attuned to the local environment, continued to flourish until the last quarter of the nineteenth century, when government primary schools supplanted it.

30. The government primary schools divorced education from the children's hereditary, culture and environment. Their almost exclusive emphasis was on reading, writing, and arithmetic. The teaching method was repetition and drill. Although in the early period the system consisted of lower primary schools of three years' and upper primary schools of another two years' duration, it was later modified to a single four-year primary school programme. It was this comparatively sterile system that represented primary education at Independence, and no significant improvements have been made in it since. There are notable exceptions to the general pattern, but it is the general pattern with which we must deal.

31. The kind of primary education developed for our people must be remodelled by the educational leadership of the nation to produce in a generation men and women with character and with faith in the principles upon which Pakistan was founded. We will later on draw attention to the major barriers to the formulation of such a programme. It should, however, be said here that we should maintain a uniform primary school system instead of introducing a variety of "basic" schools or "fundamental" schools or "village" schools. The present system should not be further weakened by the dilution which would result from a multiple system. It should rather be improved, with enough flexibility to provide for varying local needs and for experimentation.

32. Facilities for the education of girls are very inadequate. It is important that girls have equal opportunity for primary education, yet adequate provision for them has not been made. This must be done if the goal of free, compulsory, universal education is to be achieved. Existing primary schools should be thrown open to girls, wherever possible. In other cases, it will be necessary to construct new schools for them.

33. The elements of a primary school system are buildings and equipment, supplies, teachers and curriculum materials. These elements must be organised by a responsible administration and given life through constructive guidance and supervision. Continuous research should be conducted in educational methodology to discover the particular needs

and capabilities of our children and the best ways of meeting those needs. Adequate financial support must be available. There are serious deficiencies in each of these essentials today. Other sections of this chapter discuss teacher education, educational research, and the organisation of primary and secondary education. The remainder of this section will deal with the financing of buildings, supplies, and teachers, and with curriculum materials.

## Financing Primary Education

34. The constitutional responsibility for primary education rests with the Provinces and the weight of the financial burden falls upon them. Although varying amounts of local cess are collected for educational purposes, over three quarters of the expenditure on primary education is borne by the Provinces from general revenues. At Independence about one quarter of East Pakistan's primary schools were financed in whole or part by private organisations, groups of citizens, religious endowments (Auquaf) and philanthropic organisations—but this proportion has been declining.

35. A major question arises concerning the respective responsibilities of the Provincial Governments and local bodies for primary education. The responsibility of ensuring that the needed facilities for primary education are provided, whether directly by the Provincial government, by local bodies, or by private enterprise, must rest with the government. Local bodies and private enterprise however should be developed to the maximum extent by guidance and support from the government. This will not only draw forth financial resources, but also will develop through experience a widespread capacity for initiative, leadership and management of national institutions in the service of the people.

36. The degree of financial and administrative responsibility to be assumed by the government should be measured and regulated by reference to the actual needs of private and local bodies and not merely by their financial resources. A particular local body may have the capacity to manage its institutions, but may need more financial support than another. A private or local body in a relatively backward area may need direct support both in management and finance. We recognise that the Government has to act according to established rules and principles, but the main objectives of policy should be preserved and promoted by a reasonable measure of flexibility. The objectives are the maintenance and operation of all educational institutions at the highest possible standard of efficiency; the opening of new institutions according to planned programmes; and the maximum development of private and local initiative, enterprise, and leadership.

37. It is highly desirable for local communities—villages and towns—to participate in the development of their primary schools. It is also clear from past experience that educational taxes can be more readily collected if the use to which they are put can be observed by those who pay them. Also, many local communities are in a position to arrrange for voluntary labour in the interest of the local school. The communities should receive advice and assistance from the Provinces in the from of building designs and supervision of construction. As a general pattern, local communities should provide land and buildings for their primary schools and houses for the teachers. In many cases, particularly in West Pakistan, it should be possible for them to provide also some acres of productive land, the returns from which could be used to purchase books and teaching materials for the school.

38. Teachers' salaries are low—as low as Rs. 22 per month in East Pakistan. Such low rates do not attract good applicants, and compel teachers to find other employment to sustain themselves—other employment which often absorbs more time and interest than school duties and results in a high rate of absenteeism. The Provinces should work

towards an increase of teachers' salaries to a reasonable minimum level. Without providing adequately trained and paid teachers, the extension of primary education would be hollow. It would also be uneconomic. It might increase enrolment, but it would also increase wastage through loss of pupils before completing the primary classes and a poor flow of promotions from one class to another.

39. Another major responsibility of the Provinces is to ensure that schools are provided with the necessary equipment and supplies. It is important that systematic arrangements be made to secure for each primary school at least Rs. 300 worth of supplies each year, say, Rs. 150 from the Government and Rs. 150 from the locality, by voluntary subscription or otherwise. The government should control the quality of supplies and secure the benefits of centralised purchasing, wherever desirable.

40. There should be very close relationship between the development of primary education and the social reconstruction programmes, such as Village-AID. One of the major aims of this programme is to encourage the local support of education, including the construction of school buildings by villages and local bodies. This will be the chief stimulus for primary education in the villages.

## Primary School Curriculum

41. The quality and content of primary school teaching at present are poor. The remedy lies in improved teacher education and supervision, treated in later sections of this report; development of improved curriculum marterials; and enhancement of salaries. Specialised staffs of curriculum experts should be appointed in each Province to prepare learning materials with the assistance of experienced teachers. The materials—reading lessons, arithmetic lessons, and so on—should be based on the experiences and the needs of children in their own communities. Manual exercises and instruction in diet and health should be added to the curriculum. Children should be encouraged to express themselves creatively through arts and crafts and recreation. In this respect also there should be close co-operation with social reconstruction programmes like Village-AID. Lessons in village schools should be correlated with the objectives of such programmes. The experts of Village-AID may be called upon to supply information which might be included in the curriculum material.

42. In revising the curriculum and preparing learning materials it should be kept in mind that primary schools which have such narrow objectives as merely the elimination of illiteracy or preparation for secondary schools will no longer suffice. Although these goals must be kept in view, the curriculum must not be impaired and distorted by giving them undue emphasis. The primary schools must be chiefly concerned with the children and the healthy vigorous lives they should have in their home communities. The purpose of the primary school should be to aid the child to grow in mind, body, and spirit and thus release his capabilities for a constructive life.

## Primary Education Priorities in the Two Wings

43. The problems of primary education in West Pakistan and in East Pakistan are different and require different solutions. Although the population of West Pakistan is almost as large as that of East Pakistan, its geographical area is much larger, its villages more widely spaced, and its population more thinly distributed. East Pakistan, has about 26,260 primary schools, more than enough to provide adequate coverage for the Province, while West Pakistan has only about 15,391, too few for its needs. On the other hand, teachers' salaries in the West, while low, can be regarded as not very inadequate and the comparatively better teachers succeed in holding about one-third of the pupils through the

fifth class. In the East, however, primary school teachers' salaries average only Rs. 22 per month, resulting in a much higher proportion of poor teachers and of dual employment; the consequences are reflected in the fact that only about a fifteen per cent of the pupils who join the first class finish the fifth class.

44. To increase the number of schools in the West it is proposed to add 4,000 new ones during the Plan period. In the East it is proposed to provide for the substantial improvement during the Plan period of 6,000 schools distributed throughout the Province—by increasing the salaries of trained matriculate teachers and by providing better buildings and regular supplies. It should be possible gradually to eliminate about 5,000 of the weakest schools, since about 21,000 are adequate for geographical coverage; this will permit better financing and higher quality of the schools which are retained. Under Village-AID Programme, an additional number of primary schools, in both the wings of Pakistan, will be established or improved according to the requirements of each project area.

45. These additions and improvements in primary education should increase school enrolment in the West by about 600,000 children and in the East by about 400,000. The increase in numbers is an inadequate measure of the benefits that would result from the proposed programme. In large parts of the country, in particular in East Pakistan, the problem is one of holding the pupils right to the end of primary course and only additionally to increase the numbers. However, the increase of about one million children in schools would raise the proportion from about 52 per cent at the beginning of the Plan period to about 58 per cent of the considerably larger number of school age children at the end of the period. In addition, there will be a much better distribution of primary schools, which will reduce the present inequalities in educational opportunities.

46. The quality of primary education will be improved very greatly by better teaching and supervision of teachers; development of improved learning materials; and raising teachers' salaries to attract better qualified persons and reduce absenteeism. The number of trained primary teachers will be increased from about 60,000 to about 104,000 raising the percentage of trained teachers in primary schools from about 60 per cent to roughly 85 per cent. The foundations laid for primary education during this Plan period will permit a rapid advance on a sound and confident basis towards the goal of universal free compulsory primary education.

## III

## SECONDARY EDUCATION

47. Secondary schools produce the bulk of the trained and informed citizens needed in all walks of life. Most of the students after successfully completing the secondary school will go directly into business, industry, agriculture and government. Many of them will attend teacher training institutions and village worker training programme, technical, general and professional colleges and universities. Secondary education must meet the diverse needs of our country, and our secondary schools must be so distributed geographically as to be readily accessible to all areas and all groups.

48. The traditional secondary school system of the sub-continent was created and developed to fulfil the need of training English-speaking clerks and office workers. Also secondary education was dominated by the universities through their administration of matriculation examination and their power to prescribe syllabi and text books. Secondary education, thus, had little meaning as an educational programme in its own right. It was largely a preparation for a restricted type of government employment or served as a passport to higher education.

## Composition of Secondary School System

49. Our Secondary education, beginning with the sixth and ending with the tenth class, is a five-year programme. Secondary schools include lower and upper middle schools and high schools; middle schools also include the primary classes. Lower middle schools, teaching to the sixth class, are now decreasing in number very rapidly, chiefly because the primary school is becoming a five instead of a four year class school and because in some cases the seventh and eighth classes are being added to the lower middle schools. High schools invariably have ninth and tenth classes in addition to classes from sixth to eighth. At Independence, the middle schools in some of the provinces were divided into two types—Vernacular schools and Anglo-Vernacular schools. This led to an invidious distinction in the quality of instruction and between pupils, since some pupils were arbitrarily marked for advancement and some were not. Fortunately, these distinctions are being gradually abandoned, and it is proposed that by the end of the Plan period there will be only one kind of middle school.

50. Many educators look forward to the time when primary schools will continue to the eighth class and high schools to the twelfth, dispensing with the middle and intermediate classes. This is a worthy goal which should be kept in view. The present structure has the merit of flexibility which is needed to accommodate the varying needs of pupils who drop out of the school programme at several points and furnishes a ready mechanism for upgrading schools from primary to middle, from middle to high and from high schools to higher secondary schools, including the eleventh and twelfth classes. To prescribe a rigid system at this point of development would be premature and self-defeating.

51. Unlike primary education, which is predominantly supported by government, secondary education is financed chiefly by private societies, by local bodies such as municipalities, and by religious organizations. Nearly 1,900 of the 2,383 high schools, and about 1,000 of the 3,168 middle schools are maintained by these agencies. This has meant that schools have arisen where private enterprise and beneficence were available, and as a result high schools are not well distributed geographically, with rural areas being largely neglected. The disproportionately small number of girls schools must also be attributed in some measure to the same cause. There are four times as many secondary schools for boys as for girls, and more than four times as many boys in the secondary schools. The rapid social changes associated with speedy economic development will increase the demand for women in such occupations as, nursing, teaching, home economics, and social welfare. More important still, these changes will create strains on family and community living, which women are in the best position to alleviate. A major objective of secondary education, therefore, must be to preserve the integrity and unity of the social structure which is threatened by the revolutionary changes that must take place in it.

52. The government, has several well-defined functions to perform in secondary education including development and maintenance of high standards, balanced geographical distribution of schools, greater equality of opportunity for education regardless of economic status, and more facilities for the education of girls.

53. The diverse influences of tradition, purpose and financial control make it exceedingly difficult to raise standards and adjust curricula in accordance with the new educational objectives. The prospects of making the necessary changes have been improved by the creation of Boards of Secondary Education in East Pakistan, Karachi and the former Punjab. Although their functions and relationships are yet somewhat indefined, it is in general their duty to conduct the matriculation examination, grant recognition to schools and prescribe syllabi. Their development is of fundamental importance to the growth of secondary education as a distinctive programme with its own unique goals and methods.

It is essential that their functions be clearly defined and their relationship with the provincial departments of education be simple and straight-forward. They should have final responsibility for the preparation and conduct of examinations and for setting the standards of school recognition. Their chairmen should be full time officers. This relationship is outlined in more detail in the section on school organization.

## Curriculum

54. The urgency of making a series of changes in the high school curriculum and important teaching methods is generally recognised, and has been frequently pointed out by our educational leaders. These changes stem from the basic principle, that secondary education has its own objectives in terms of the needs of youth. It should no longer be treated merely as a preparation, in a rigid and mechanistic way, for a written examination based upon university entrance requirements.

55. The first of the needed changes is to enrich the programme by putting emphasis, in the humanities and social sciences, on the great principles and history of our culture in order to develop individual character, righteous living, dignity among our youth and to strengthen and purify the base of patriotism founded on the historic role of their nation in the marching life of mankind. This change is well under way, but it has to be encouraged and deepened to achieve an increasing degree of social cohesion.

56. A major practical problem in the secondary curriculum is that of language. Whereas the mother tongue is the medium of instruction in the primary, middle and high schools, English is the medium of instruction in colleges and universities. Whereas the mother languages are the key to the history, literature and great cultural traditions of our country, English is still the language of government, industry and largescale commerce. This situation puts a tremendous burden on the secondary school system, but it is a burden which must be borne. The solution is not a one-language pattern, but the adoption of modern methods of language teaching, in which great strides have been made in recent years. With the assistance of experts in this field, the departments of education should arrange for the systematic adoption of these methods, and provide for the intensive training of their language teachers. Teachers training institutions can take the leadership here and in many other fields requiring the application of improved techniques.

57. The third change which, it is universally agreed must be made in the secondary school programme is to offer a more diverse and enriched series of courses to prepare rounded citizens in terms of their own capabilities and the social and economic needs of the nation. Literary subjects have been relatively better taught in our secondary schools, while mathematics and the physical and biological sciences have been poorly developed. Owing to inadequate attention to the scientific and industrial development of the country in the past, a false prestige has been assigned to literary attainments rather than manual dexterity and pride in craftsmanship and technical accomplishment.

## Relation to Vocational Training

58. More specifically, the secondary school system must strengthen its teaching of science and applied arts and give pupils more adequate pre-vocational preparation for careers in agriculture, education, social welfare, business, and industry. There is general agreement on this point, but there is uncertainty about the methods for accomplishing this desirable objective. The uncertainty lies in two questions :

(*a*) Should the secondary school system train pupils for specific occupations in agriculture, business, industry and government ?

(*b*) Should there be one secondary school system or a multiple system with schools specialised according to an agricultural, technical, commercial, or academic bias ?

In order to avoid delay and confusion in educational planning and development, in order to make the best use of resources, and to serve the best interests of the country and its youth, it is necessary that these policy questions be answered clearly and promptly. Answers have been given by our educational bodies but it is necessary to reiterate and emphasise them as frequently as the occasion may arise in order to incorporate their principles in our thinking and practice.

59. The secondary schools system should not be relied upon to train pupils for specific occupations in agriculture, business, industry or government. Its role in relation to vocational education should be to prepare boys and girls in the knowledge and skills which will widen their opportunities for more particularised vocational or professional training, in special or higher institutions, or in employment. This conclusion is reached because under any other view the essential values of secondary education to which we have drawn attention in para 55 would be seriously impaired, and secondly because ordinary schools are not a satisfactory means for teaching occupational skills. The best educational process for training in an occupation is " learning by doing it on the job ". Moreover, any expectation that the school system should provide skilled specialists for the innumerable types of work in industry, business, commerce, government and agriculture would mean an intolerable economic and curriculum burden. The schools can and should provide a solid basis for specialised training by educating pupils in principles, by assisting them to reach mental and manual maturity, and by providing them with information and guidance concerning opportunities in various occupations. Secondary schools cannot be expected to sacrifice their essential objectives to the narrow training required for specific occupations.

60. The answer to the second question is partly contained in the answer to the first. There should be one, and not several, secondary school systems. Rather than relying upon a series of " technical ", " agricultural" ,"commercial", and " traditional " high schools the curricula of all secondary schools should be broadened and enriched. A bifurcation or stratification of the school system would tend to put pupils into rigid social and economic classes and unduly limit their future choices and opportunities. The solution is to broaden the curriculum of each secondary school, with emphasis on those aspects of economic life which are of greatest concern to the community and which provide the most probable outlet for our youth. For example, rural schools should be encouraged and assisted to add prevocational training in agricultural and commercial subject ; city schools should be encouraged to add technical and commercial subjects. Under this concept, secondary schools, both middle and high, would become multipurpose schools providing a general education with a practical bias adapted to the interests of childern and their life in the community.

61. It must be emphasised that only a small number of the boys and girls who finish high school will proceed to the intermediate and degree levels of instruction. Most of them will find employment immediately after matriculation. Some will take highly specialised training at polytechnics and teacher training institutions and in similar vocational courses. It is for this reason that secondary education should have its own terminal objectives. One of the most important objectives of secondary education is that pupils be educated in the essentials of human relations. The understanding of the scientific basis of individual motivation, the search for security, the desire to belong to a group, the urge to have a voice in matters which concerns one and the understanding of group processes in the home, in the school, on the job, and in the community and government, are essential

to the growth of democracy and hence should be developed in all school pupils. In addition, acquaintance with the principles of human relations will be of vocational value to many pupils when they finish their education and become teachers, nurses, supervisors in industry, village aid workers, etc.

### Plan for Secondary Education

62. The Plan of development which we propose for secondary education is based upon the above review of its needs and policies. The Plan also assumes that a large part of the burden of financing secondary education will continue to be shouldered by non-governmental agencies. The government's role is to encourage and assists private undertakings, to provide leadership concerning school standards, to assure the more adequate geographical distribution of secondary schools, and to give positive support to the curriculum changes considered desirable or necessary from the national and provincial points of view. The programme also depends upon the progress of the Boards of Secondary Education in improving the system of examination so as to emphasise the internal integrity of the secondary school programme, as distinct from its treatment as a course preparatory to entering a college, and so as to encourage teaching and learning in accordance with high standards, as distinct from preparation of students to take standardised tests.

63. The immediate tasks in secondary education are to improve the distribution of schools so as to serve rural areas more adequately and to provide more opportunities for girls, to improve the quality of their curricula by strengthening sciences and prevocational and industrial arts courses and to relieve congestion in existing schools. In East Pakistan it is proposed to develop 1,000 strong junior high schools (middle schools with Classes I to VIII), by upgrading some primary schools, downgrading some weak high schools and improving some existing middle schools. The curricula and facilities of eighty of these schools will be enriched with sciences and arts and crafts in a balanced programme. Five hundred high schools, almost all of them conducted by private enterprise, will be strengthened by grants-in-aid, providing for increases in teachers' salaries, curriculum diversification and building and equipment additions.

64. In West Pakistan, 150 primary schools will be upgraded to middle schools, 40 middle schools will be upgraded to high schools and 75 new government schools will be constructed ; grants-in-aid for buildings will be given to 100 private high schools. Five hundred middle schools and 100 high schools will be improved by adding or strengthening science and prevocational and industrial arts courses. Implementation of this programme will result in the improvement of quality and better distribution of middle and high schools all over the country. In addition there is expected to be an increase in the enrolment of secondary schools of about 85,000.

## IV

## ORGANIZATION AND ADMINISTRATION OF PRIMARY AND SECONDARY EDUCATION

65. As noted before, the present educational system was established a century ago for purposes which are totally inadequate for our requirements today. As the objectives of education have to be re-oriented and as the number of schools is increasing fast, the present organization and methods of administration have become deficient. Several carefully prepared schemes for educational improvement have failed because of inadequate organisation and staffing. Improvements in school organization and administration, therfore, are essential to the development of primary and secondary education.

## Present Arrangements for School Administration

66. The constitutional responsibility for education lies with each Province. It is discharged through a directorate of education under the ministry of education. The chief administrative officer is the director of public instruction. He and his staff of divisional inspectors supervise the district inspectorates, which are the basic administrative units. The Provincial director, the divisional inspectors and the district inspectors are all supplied with staffs of deputy and assistant inspectors, whose duties are primarily administrative. This organization for conducting primary and secondary education was established primarily to perform administrative rather than educational work. It does not contain the elements necessary to ensure evolution and progress in educational thought and practice. The situation has worsened with the rapid increase in the number of schools, without a commensurate increase in the number and quality of inspectional staff or a change in their educational outlook. No provision has been made for research and experimentation to keep the system responsive to changing requirements of society.

67. More than a decade ago, in order to encourage the development of local government and to accelerate the achievements of universal free primary education, a system of district and local boards was inaugurated in the Provinces. District school boards were created to manage all primary schools except those privately supported. District primary education funds were created, made up of provincial grants, a share of local taxes, and a primary education cess levied locally. Some district school boards were authorised to delegate some or all of their powers to local, village, municipal or union boards. Union primary education funds were created for maintenance and equipment expenditures. Both the district and local boards use the advisory and executive services of the district inspector.

68. The original objectives of transferring the control of primary schools to local bodies were to associate the people in the villages and towns with the development of primary education and to promote local participation in financial responsibility. However, many local boards have been less than successful in discharging their educational responsibilities, and the result has often been a general decline in the standards of primary schools education.

69. Other important organizations in the educational system are the provincial boards of secondary education and in some administrative units, committees of primary education. These bodies, composed of appointed, nominated, and *ex-efficio* members (the latter representing the several ministries and universities), are influential chiefly in connection with school recognition, examination, curricula, syllabi and text books. The specific and relative powers of these bodies have not been clearly defined, in relationship either to the district and local boards or to the education inspectorate.

70. The three major weaknesses in this system are :

(a) the dual control of schools by the inspectorate and the local, district and special boards, and the lack of clarity in their respective responsibility and authority, which lead to friction, delay, and frustration in the conduct of school affairs ;

(b) the rapidity with which local bodies were given functions they were not prepared to assume ; and

(c) a management rather than an educational bias in the directorates of education.

These weaknesses can be corrected by clarifying the responsibility of each agency and body which has an educational function and by equipping each with the kind of personnel needed to discharge its particular set of functions.

**Recommended Improvements**

71. In order that the provincial directorate of education can fulfil its responsibility for the development of education, as well as for the administration of the schools, two major changes are required.

72. First, specialised groups of highly competent staff should be created for such fields as primary, secondary, and vocational education, school buildings, education research and planning, and teacher training. These staff groups would be the centres for developing policies and programmes to improve the educational system. The most urgent needs are for groups concerned with the training of better equipped teachers and with preparing learning materials suited to the needs of the several localities and the abilities of the children.

73. Second, school administration should be decentralised by giving a greater degree of final authority to the district inspectors, who might more accurately be called " district education officers ". At the same time, guidance and supervision rather than administration, should become the principal function of divisional inspectors. As a further measure of decentralization, some of the functions of district offices should be transferred to sub-district offices staffed with trained area education officers. A system of in-service training should be devised for these area officers, in addition to the training they receive before entry into the service, so that, by reading specially prepared literature and by participating in staff meetings and seminars, they will become capable of providing constructive guidance to teachers.

74. For the present, the provincial directorate of education should have financial responsibility for primary school teachers and supplies, for the construction and maintenance of government secondary schools, and for their teachers and supplies. In discharging these responsibilities, however, as indicated earlier in this Chapter, each Ministry of Education should establish one or more autonomous boards of secondary education to administer matriculation and later on intermediate examinations and to establish standards for the recognition of secondary schools. For the sound exercise of these functions, each board of secondary education should have a full-time chairman of recognised professional competence. It should leave to the education directorate the work of granting recognition to schools in accordance with the standards laid down by it, so as to avoid the creation of a separate hierarchy of inspectors and other school officials.

75. It is most important that the functions and relationships of the district boards for education should be clarified so as to reduce friction with the education directorate. To this end, we recommend that a commission should be appointed to consider what relationship should be established between the directorate and the local bodies, and on what basis grants should be allocated to ensure that schools under local bodies are managed on sound and efficient lines.

76. The possibility of constituting local school management committees and district advisory committees should be considered. Initially, the local school management committees, of which there should be one for each school and which should be elected by members of the community, should be responsible for providing school buildings, for consulting with the area education officers on the selection of teachers and the school programme, and for supplementing the school supplies and learning materials provided by the directorate.

## V

## VOCATIONAL EDUCATION AND TRAINING

77. This section deals with a relatively narrow subject : the preparation of skilled personnel for industrial and business occupations which do not require professional education at the colleges or universities. Professional education is discussed in a later section of this chapter. Sub-professional education and training in fields other than industry or business—such as agriculture, health and housing and settlements—is for the most part discussed in other chapters of this report, although a few references will be found here.

78. At Independence the country found itself with no organized system of technical and vocational education. Some of the professional colleges of engineering and agriculture offered two year diploma courses ; there were series of artisan and trade schools, and a number of private schools teaching elementary business skills. Furthermore, certain trades or crafts were taught in families and in the remnants of the age-old guild system. But these avenues for training were capable of providing only a small fraction of the trained persons required by a rapidly expanding business and industry. Such industrial establishments as existed at Independence had few organised training programmes under way. The schools encouraged excessive attention to literary skills and training for governmental occupation. The low status of occupations requiring technical skill resulted in an unfortunate prejudice against manual work.

79. The lack of training institutions has been a severe handicap to industrial development. At the same time, having no organised and entrenched system of vocational education and training, we are in the fortunate position of being able to devise a system which fits our situation, profits from the experience of more highly industrialised countries, and avoids their errors. A sound basis for such a system was laid in the 1950 survey and report of the Technical Education Committee appointed by the Council of Technical Education for Pakistan. The report has served as a guide to most of the subsequent planning and development carried out by the Centre and Provinces. Its major recommendations concerning vocational education are summarised in the Six-Year National Plan of Education Development as follows :

(*a*) Technical education should be treated as an integral part of the educational system.

(b) Technical high schools should be established in order to introduce a technical bias in secondary education for enabling students to select courses of studies best suited to their aptitudes. Such technical high schools would be of three categories :
    (i) with an engineering bias ;
    (ii) with a commercial bias ; and
    (iii) with an agricultural bias.

(c) In order to produce supervisory personnel for industry, polytechnics should be established as early as possible.

(d) To meet the requirements for skilled workers the following types of institutions should be provided :
    (i) trade schools, and
    (ii) artisan schools.

(e) In addition to the various institutions recommended above, part-time courses should be started whenever possible to provide training facilities to workers employed in industry.

(f) Directorates of Technical Education should be responsible for the control and development of technical education.

80. Since the Technical Education Committee reported, a small number of technica high schools and two polytechnics have been started along the lines of the Committee's recommendations. However, clear cut national and provincial policies and plans have not been established to guide the implementation of a complete and integrated programme. Also, the Committee did not deal fully with the role of industry in the training process. As a result, there is still a conglomeration of unrelated schools and activities, many of which have little perceptible effect on the total supply of specialised personnel and the rest of which have less than their potential effect because they are not tied into an over-all programme. Even the newer, well-supported programmes which are getting underway with foreign assistance are a cause of concern because of their tendency to be based on a variety of foreign conceptions rather than on a plan for Pakistan.

## The Role of the Employer

81. It is clear that the development of a supply of specialised skilled personnel is a co-operative process in which the ministries of education and labour and the several employers all must play their respective roles. It is impossible to rely upon the educational system alone to produce skilled and ready-to-work craftsmen and operators to meet all of the nation's needs. The great bulk of such personnel is and will continue to be trained on the job for a number of reasons :

(a) Experience and research show that the best way to learn a skilled trade is by doing a job under trained supervision.

(b) The establishment of the trade schools of such excellence as to produce fully qualified skilled labour would divert much needed personnel and equipment from industrial development.

(c) Reliance of industry upon the educational system for a large proportion of its skilled labour would put an intolerable load on an already overburdened system.

(d) The rapid development of industry provides the best opportunity to develop rapidly a skilled labour supply, if the two tasks are undertaken concurrently and in conjunction with each other.

82. The major channel for training skilled personnel is, therefore, through industry and business. Plans for training the necessary workers should form part of the plans for establishing any new enterprise, and the training of workers in existing industries on a systematic and continuing basis should be recognised as a major responsibility of management. Not only is this the best and most economical way to obtain skilled workers, it is also very desirable from the standpoint of the businessmen and industrialists, since it results in more efficient operation, better maintenance of equipment, and lower costs.

83. Industrialists, however, frequently do not recognise their responsibility for training or the benefits it can bring them. The Government must assist and encourage the establishment of the necessary training arrangements and can first of all set a good example by doing so. Some of the finest technical centres in the country are those developed by the Ministry of Defence for the training of skilled craftsmen to work in its own plants ; these illustrate what can be done by an individual enterprise whether public or private. The PIDC also has stressed training arrangements in connection with the establishment of new enterprises, and has sponsored the Institute of Personnel Training which has organised training-within-industry programmes both in PIDC plants and in private plants.

84. An important additional method which should now be undertaken is the establishment of apprenticeship training. Apprenticeship training programmes are used in all advanced countries to produce fully trained artisans, skilled in all aspects of their crafts.

Apprenticeship is essentially a long term programme from which important results can be expected only after several years and which should therefore be started as quickly as possible. We recommend that the Government take the lead in establishing apprenticeship councils, to consist of representatives of industrialists and workers and of Government departments concerned. Such councils should be established at Central, regional, and local levels to stimulate the establishment of apprenticeship schemes in specific industries, to advise provision of related theoretical instruction through educational institutions. The estimated cost of the programme during the Plan period is two million rupees, primarily the administrative costs of the staff for the Apprenticeship Councils ; employers would meet the cost of the working of the programme in individual establishments.

85. The experience of other countries shows that until individual industrialists learn from their own experience that training programmes are profitable because they raise efficiency and reduce costs, it is often useful to provide them with an incentive to establish such programmes. This can be done in several ways, one of which is to give tax benefits to those industries which conduct training programmes of an acceptable standard. Government contracts and sanctions can also be given on condition that training programmes for skilled labour must be carried out by the recipient. This would be especially useful when foreign technicians and engineers are engaged to build a new plant and to supervise its initial operation.

### The Role of Labour Ministry

86. The performance of skilled labour in our country, and the expectation of performance, are lower than they should be. Government should undertake the function, appropriately in the Ministry of Labour, of developing high standards, of demonstrating the benefits of high standards and through the administration of trade tests and the issuance of certificates, of regularising the standards of qualification and skill of the several categories of labour. The Ministry of Labour at the Centre should create a highly competent labour performance standards staff to prepare tests, establish standards and issue certificates. It should also continue and expand its service of collecting and analysing data about manpower and occupational trends and needs.

87. The Ministry of Labour operates five labour training centres at Karachi, Lahore, Sialkot, Peshawar and Dacca. They are survivals from a large number of centres, nineteen at Independence, which were established during the war to speed up the training of adult labour for war-time industry. After the war the centres were converted to training and refresher training for ex-servicemen and refugees. The five centres which remain are considered primarily as a nucleus which can be expanded in other temporary periods of emergency. They are not, and quite properly considered as the means of producing more than a fraction of the skilled labour supply needed on a continuing basis. The period of training at the centres is generally twelve months. Instruction is offered in about twenty trades, including such courses as bricklaying, weaving, and black-smithing. Adults between the ages of 18—40 may attend provided they meet the requirements of the course for which they enrol. About 1,250 seats are available at the 5 centres.

88. The future function of these labour training centres should be the development and demonstration of high standards of craftsmanship. It is not necessary in general to increase the number of centres for this purpose, although centres should be provided at Chittagong and Khulna for better coverage. It is essential, however, that if these centres are to serve their purpose they should be greatly improved in quality. In general, buildings are poor, equipment is obsolete, and many of the instructors are not adequately trained. The development plan contains provision for modernising the existing centres and for adding the two new centres. They should be operated, as at present, by the Ministry of Labour,

but as an integral part of the standards-developing function of that Ministry. The strictly technical curriculum which is now offered should be supplemented by courses in social studies so that the trainees become good citizens as well as technicians.

**Role of the Educational System**

89. In addition to industry and the Ministry of Labour, the educational system has an important role to play in vocational education and training. Its functions in this regard are of three types : to provide basic and well-rounded curricula and instruction at all levels, but particularly in middle and high schools, to better prepare boys for employment and training ; to provide related instruction to supplement on-the-job training for apprentices and trainees ; and to conduct technical schools at the diploma level to produce technicians and supervisors. The school system should not attempt to produce skilled labour. The report of the Technical Education Committee emphasized this policy :

" In formulating any scheme for technical education, general education must form the foundation and in imparting it, the teaching of handicrafts along with the cultural subjects in the basic stages is essential. Vocational education must be so planned as to receive increasing attention, not merely because of its importance in the economic life of a nation, but as a discipline and factor of value in social and cultural development ". This is explained as below :

" It is not the intention to make the students specialize in any particular trade or branch of industry. The general character of education is proposed to be kept intact ".

90. The 1952 report of the Commercial Education Committee appointed by the Ministry of Commerce and Education also reached this conclusion :

" Teaching of general subjects in the traditionally liberal manner with provisions of options for vocational subjects to be taught in selected schools for their direct vocational values would probably constitute an easier line of approach (than strictly commercial schools) in our special circumstances in addition to being in line with the experience of most other countries " ; and

" The introduction of bias will not involve the opening of a school, which but for such a bias would not be opened ".

In general, then, both these expert committees reached the conclusion that schools should not teach specific occupations, but that they should enrich their curricula in order to prepare pupils better for a wide choice of occupations. This is the school system's major function in vocational training.

91. The second function of the school system is to offer facilities for class room instruction related to formal apprenticeship and other training programmes conducted in industry. Funds provided by government to give general supervision and guidance to these programmes should include an amount to pay schools and instructors for the evening and other off-schedule facilities and time they contribute. The schools can be especially helpful by organising courses in industrial centres which may serve the related instruction needs of a group of industries, particularly small industrial establishments. The most important task in this connection is one of organisation, that is, arranging with employers for the enrolment of their apprentices and trainees in classes, scheduling the classes at appropriate times and places, finding and employing competent part-time instructors, and procuring or preparing suitable instructional materials. This last function will include the writing and publishing of manuals in Urdu and Bengali, and should be the responsibility of the director of technical education and of the polytechnic and monotechnic institutions.

92. The third function of the educational system is to conduct technical schools at the diploma level to produce technicians and supervisors. Four polytechnic institutions for this purpose are provided in the development plan ; two of them started functioning in late 1955, the other two will commence operations late in the Plan period. These polytechnics represent one of the most significant of the additions made to our educational system since Independence. They have the purpose of providing persons, in a three year course after matriculation, with a good technical background qualifying them to serve as supervisors, engineering and construction assistants and technicians, technical specialists, production planners, installers and operators of highly specialised machines, and maintenance technicians. Men with these qualifications will be the backbone of technical accomplishment and performance in the country's economy.

93. Technical education at the diploma level is also offered at each of the engineering colleges. This work should continue until the polytechnic institutes are in full operation and producing about nine hundred trained boys a year. At that time the colleges should discontinue their diploma courses, using the facilities and instructors to increase the training of professional engineers.

94. There are in addition fifteen trade schools and five monotechnic schools under provincial ministries of industries, twelve artisan schools and about seventy weaving and dyeing schools, privately managed (with a few exceptions), but subsidized by the ministries of industries, and twentyfive private commercial schools, also receiving grants-in-aid and teaching typing, shorthand, and some book-keeping. The trade schools are almost uniformly poorly housed, equipped, and staffed. They ordinarily offer a two-year course in such subjects as carpentry, metal work and electricity, to boys who have passed middle school examination, but they give no academic work. Their seats are not filled and those who pass out of these schools are not considered qualified workmen by employers. It is proposed that these trade schools be converted to multi-purpose high schools with new buildings and equipment, continuing their bias in favour of technical subjects but adding academic subjects, and that they be transferred to the ministries of education. On the other hand, monotechnics (specializing in single technical fields, such as metal, leather, or textiles) fill a very real need at the same level as the polytechnics (which offer work in several fields). Provision has been made to establish one more monotechnic in West Pakistan and to support and strengthen the monotechnics including re-housing and re-equipping where necessary. It is recommended that both the monotechnics and the polytechnics be transferred to the Ministries of Education.

95. The numerous artisan classes and weaving schools which have sprung up have an indifferent effect, collectively, on the supply or quality of our labour force, although some of them may meet a local need. Many of them could probably be discontinued. A few might be continued, particularly in areas where, through Village-AID or other social reconstruction programmes, special and systematic efforts are being made to encourage and assist cottage industries. A careful review should be undertaken as promptly as possible to ascertain the usefulness of these schools, not as a part of the continuing institutional structure, but as related to current development programmes.

96. Private enterprise should continue to be encouraged to conduct commercial schools with emphasis upon English, typing, shorthand, and office practice. Reasonable fees will probably be sufficient to make it unnecessary for government to give much in the way of grants-in-aid. However, the standards of teaching and student performance are inexcusably low, and the Boards of Secondary Education should raise standards of recognition for these schools and administer them rigorously. It is not necessary for government to conduct commercial schools except to encourage commercial sections in urban high schools, as proposed in the discussion on secondary education.

## Government Organisation for Technical Education

97. The Technical Education Committee's recommendation that Directorates of Technical Education be created in each Province under the control of the Ministries of Education has not been acted upon. The need for a co-ordinating and stimulating body for vocational education and training is exceedingly urgent now. There are still a number of different agencies incurring expenditures and carrying forward programmes in this field in an un-related and inefficient manner. All groups which have studied the problem have recommended the creation of a co-ordinating structure. It is urged that such a structure be created at an early date along with following lines :

(*a*) A National Training Board should be established with the Ministry of Labour, at the Centre, composed of representative of the Ministries of Industries Education and Labour, and representatives of industry and labour, with such functions as the collection and dissemination of information about institutions and programmes, the formulation of national training policies, and the submission of advice concerning the use of facilities and the development and maintenance of standards. This Board should serve as the advisory body on the administration of national programmes such as training-within-industry, apprenticeship, and adult labour training centres. Finally, the Board could provide a useful service by issuing a series of publications reporting occupational needs and opportunities, a series of bulletins concerning simple technical methods which could be applied in homes, small farms, and small shops, and a series of instruction manuals on electricity, plumbing, various handicrafts, blueprint reading, etc.

(*b*) A Directorate of Technical Education in each Provincial Directorate of Education to supervise the polytechnic and monotechnic institutions, to give leadership to the teaching of technical subjects in secondary schools, to organise related instruction and instruction materials for apprentices and trainees and, in general, to provide continuous staff services concerning vocational and technical education and training.

## Results during the Plan period

98. These proposals for vocational education and training can provide the country with an effective method for meeting its requirements for specialised personnel. They will depend for success upon the interest and co-operation of the Ministries of Labour and Industries and Education and of employers. In educational terms, the policy is to extend as widely as possible, through the secondary school system, instruction in manual arts and a range of technical subjects as a means of preparing students better for work opportunities without splitting the student population into distinct channels— literary technical, and so on. Above the secondary level the emphasis will be placed on the training of highly skilled technicians in the polytechnics and monotechnics. Skilled workmen will be trained for the most part on the job, under organised systems of in-plant training such as apprenticeship, aided and supported by Government.

99. It is hard to judge how much will be accomplished during the Plan period. It is difficult in the first place to make any reliable estimates of requirements for skilled technical personnel. The Interim Manpower Survey Report, March 1955, prepared in the Ministry of Labour covered about 5,000 employing establishments (in industry, transport, trade and commerce, and Government). The results showed :

(*a*) At the time of the survey, employing establishment reported occupational shortages totalling about 17,500.

(*b*) Employers expected to require an additional 63,500 skilled and semi-skilled workers (a 20 per cent increase) during the six months following the survey.

(*c*) About 2,000 highly skilled technicians (of the type turned out by polytechnics) seemed to be required.

These figures were undoubtedly exaggerated, and businessmen would not in fact be able to expand their operations so fast. Nevertheless the figures provide impressive evidence of large requirements. Further evidence is awaited from succeeding manpower surveys which will enable us to estimate requirements more accurately.

100. We have also attempted to estimate what skills will be required to carry out the Plan. We estimate roughly that about 40,000 skilled workmen will be needed in schemes for large scale industrial and water and power development, plus about 5,000 technical supervisors. A sizable but unknown proportion of these requirements will be met, however, by specialised personnel already engaged in development work in these fields. It has not been feasible so far to make estimates in the fields of construction, small and cottage industries, commerce, and agriculture but there will of course be substantial requirements.

101. In summary, the requirements for skilled workers and technicians are clearly large, but no precise estimate has been feasible. The results to be expected from the Plan proposals are unmeasurable, except those that will be yielded by organised educational institutions. We need substantially more information on the training that is going forward in industrial establishments before we could make any estimates.

102. With respect to the crucially important question of training technicians, the development Plan will give us by 1960, four polytechnics where there were none before the Plan period began, one new monotechnic as well as improved and extended training in the five monotechnics which were in existence. At the beginning of the Plan period, the three engineering colleges which trained supervisory personnel at the diploma level turned out about 240 technicians per year, and the monotechnics turned out perhaps 250 more. The polytechnics, monotechnics, and the diploma sections of the engineering colleges are expected to produce in 1960 about 950 technical men at the diploma level. This is a very sharp increase, especially in view of the severe difficulties in obtaining trained teachers for these institutions. Nevertheless the rise may not be rapid enough to satisfy the requirements of development. This is a question we expect to study further as more data become available.

## VI

## EDUCATION AND RESEARCH IN TEACHING

103. The key to improvement in primary and secondary education is the teacher. The addition of school buildings, the provision of supplies and equipment, and the improvement of learning materials are all necessary, but they would come to naught without devoted and well-trained teachers. The expansion of the school system depends most of all on a supply of trained teachers. For this reason, education and research in teaching have the highest priority in the development of primary and secondary education. As emphasised before, improvement in the quality of education must be given the highest priority, and this means that immediate and imaginative attention must be given to the training of teachers.

104. The Primary and Secondary Education Committee of the Pakistan Education Conference of 1947, summarised the need for good teachers as follows :

> " The Committee agreed that a properly trained and reasonably well-paid profession was essential to the building up of a great State. It, therefore, suggested that the Provinces should take necessary steps to ensure (1) the proper training of teachers and (2) an adequate scale of salary. The Committee noted that the introduction of free and compulsory education would require an army of teachers and suggested that the Provinces should adopt special measures to meet this need. In this connection they suggested the adoption of short-term courses for their training. In particular, the Committee stressed the desirability of adding research departments to training institutions for study of special problems related to teaching ".

This Plan of Development seeks to provide the means for implementing the proposals of the Pakistan Education Conference.

**Teacher Training Institutions**

105. Primary teachers are trained in normal schools maintained by the Department of Education in each Province. Students admitted after middle pass (eighth class) take a two-year course, while students admitted after matriculation (tenth class) take a one-year course. Those who pass the examination are awarded a Junior Vernacular Certificate. In principle, no student should be admitted to a normal school without having passed the matriculation examination, though it may be some years before this goal can be reached because of a shortage of matriculates in some districts. The name of the Junior Vernacular Certificate should be changed to Primary Teachers' Certificate.

106. At the present time, there are 99 normal schools which together issue about 6,750 certificates a year. The number of new primary school teachers available from these schools by the end of the Five-Year Plan period will thus be about 34,000. This is not a large enough supply of teachers to meet the country's needs. There are now 98,000 primary school teachers, of whom 38,000 are untrained. The new and enlarged primary schools proposed in the Plan will require some 22,500 new teachers. It is proposed to open 25 new normal schools with an averge capacity of 120 seats each. These schools will award about 9,500 certificates during the Plan period. Even this addition will yield a total only of 43,500 new trained teachers by 1960, against the total requirement of 60,500 including losses due to resignations, retirements, etc. However, it is expected that many untrained teachers with experience will become qualified by taking refresher courses, for which we make proposals later. The normal schools recommended by us would be adequate to meet all requirements on a steady permanent basis.

107. It is necessary, in addition, to improve the facilities of the existing normal schools. The Plan makes provision to improve buildings, add equipment and supplies and supplement the staff of these institutions. Many normal schools are operating at less than full capacity and efficiency because of inadequate support. It is more economical to renovate these schools than to spend larger amounts of money to build new ones.

108. As pointed out in the section on primary education, it is desirable that primary schools be thrown open to girls or, where that is not immediately possible, schools should be built for girls. This will create a demand for a much larger number of women teachers

for primary education. Women teachers are needed in girls' schools and many possibilities exist for using husband-and-wife or brother-and-sister teams in co-educational schools. In order to train women teachers many more normal schools for women must be opened ; at least one-half of the twentyfive new schools should be for women.

109. Middle schools teachers are trained in separate training schools and in departments attached either to normal schools or to teachers' training degree colleges ; there are sixteen such schools and departments. The certificate granted on satisfactory completion of the course, one year in each case, is known variously as Senior Vernacular, Junior Anglo-Vernacular and Certificated Teacher (only in colleges). Except for the latter course, which requires intermediate pass for admission, the entrance requirement is matriculation. About 1,000 teachers a year are trained in these courses. These training courses should be up-graded uniformally, and be open only to those who have passed their intermediate examination. The certificate should be known as " Certificate of Teaching " and the present titles, reminiscent of a divided system of education, should be abandoned. It is proposed that the three normal schools existing in East Pakistan, where at present matriculates are trained as middle school teachers, be converted into C.T. institutions of the type recommended. For West Pakistan, provision is made in the Plan to open two additional C.T. institutions, which at a capacity of 120 each will add about 225 trained middle school teachers a year, although only 1,000 during the Plan period.

110. High school teachers are trained in teachers' training colleges, of which there are six, and in education departments at the Universities of Peshawar and Sind. Candidates holding bachelors' degree are admitted to these one-year courses, which lead to the Bachelor of Teaching degree. At present about 500 students receive this degree every year. With funds provided for strengthening and improving the existing training colleges in West Pakistan, and the opening of two new colleges in East Pakistan, about 800 new graduate teachers will be trained annually ; this is considered sufficient to meet the country's requirement of trained graduate teachers.

111. The institutions training for C.T. and the degree colleges would at existing rate, prepare about 7,500 secondary school teachers during the Plan period. The expansions proposed will increase that number to 9,000 teachers. This should provide the requisite number of teachers for secondary schools required during the Plan period. It will also enable the Department of Education to release more experienced and highly trained teachers for work in normal schools and teachers' training colleges.

112. When adding and expanding institutions for the training of secondary school teachers, it is necessary to give high priority to the training of science teachers in order to support the plan to add science instruction to most high schools. Of all new senior high school teachers required, 2,600 will be teachers of science. It is probable that only about 1,000 such teachers can be made available during the Plan period ; however, extending this programme into the future when secondary schools can be fully staffed in science.

113. The basic structure for the training of teachers is sound. It is essential, however to close up three gaps : the low academic attainments of education students ; the lack of courses for special groups of personnel, such as inspectors and vocational teachers, and for refresher work ; and the lack of educational research and post-graduate study to enrich the curricula of the teacher education institutions.

## Qualifications of Student Teachers

114. As pointed out above, normal schools accept middle pass students, who after two years, at the age of sixteen or seventeen, are certified to teach in the primary schools. An effective programme of primary education cannot be built on teachers with so poor an educational background and with so little maturity. The Advisory Board of Education recommended in 1949 that the minimum educational qualification for teacher training should be matriculation ; this recommendation continues to be valid. In addition, efforts should be made to encourage intermediate pass students to prepare for primary school teaching in certificate courses. Teachers holding certificates of teaching could be used to begin with as head masters at primary schools and later as teachers. This practice would greatly strengthen teaching in the primary schools and help to prepare them for the time when it may be desirable to extend primary education to the eighth class. In the long run, the minimum qualification for a primary school teacher should be the Certificate of Teaching. This process may be accelerated by encouraging intermediate and degree colleges to add education as an elective subject to their curricula.

115. The desired results cannot be achieved, however, unless teachers are restored to their one-time high status in the social structure. The deplorably low salaries paid to them are evidence of the scant importance attached to them in our present-day society. With low salaries the quality of leadership provided by the teachers is low and further detracts from their standing in the community. It is imperative that this situation be rectified.

116. Although special mention has been made of the primary teachers, whose poor qualifications create a critical situation, a similar situation exists for the secondary school teacher who, because of the un-attractive salary is too frequently a person who has failed to qualify for some other profession. We must make it possible for teachers to have at least a living wage to free them from the need to earn a supplementary income and to enable them to participate in the cultural life of the community. The Advisory Board of Education has recommended a minimum starting salary of Rs. 60 for primary teachers and Rs. 120 for secondary school teachers plus cost of living allowances in both cases. These recommendations are modest as evidenced by the fact that teachers in some parts of the country are paid more ; they are attainable in all provinces and should be the minimum goal by the end of the Plan period. Because of the great shortage of science teachers, additional salary inducements must be offered to attract the number required. One method of doing this is to give qualified science teachers some advance increments in the ordinary salary scale.

## Education Extension Centres

117. The teacher education institutions overburdened as they are, make no attempt to meet the needs of special groups in the teaching profession. It is necessary, if the goals of a reoriented system of education are to be achieved, to give particular attention to these groups. The first of these is the large number of teachers who have not had formal training and the many who, having received a certificate, are in need of re-inspiration and instruction in new teaching techniques. As a quick and efficient way to serve these teachers, provision has been made for five education extension centres, complete with class-room buildings, hostels, practice-teaching facilities and outstanding instructors. These centres should conduct courses of various durations for all types of teachers, each course being devised to meet the needs of the group enrolled at the time. Both Wings should develop a scheme by

which their teachers could take refresher courses periodically, with all expenses paid. First priority should be given to those teachers who have had no training and to those who have not passed the matriculation examination.

118. These extension centres should not limit their responsibility to refresher courses for primary and secondary shools teachers. An equally great need existed in respect of school inspectors — to be called educational officers. There is nowhere in the whole country any institution to train these key persons in the educational system. Assistant district inspectors are recruited from among B.T. graduates who have had three or four years experience as assistant masters in high schools. Yet their chief function is to provide guidance for primary education. Most often the inspectors are from towns and cities, although their duties are in rural areas. The processes of supervision and administration have not received due attention. It is proposed that each Province should arrange for its assistant inspectors, after two years of experience, to take a six-month course in school supervision and administration. They should receive their full pay during this period. A certificate of Educational Administration and Supervision should be issued on the completion of the course and on passing an appropriate examination. A Bachelor of Teaching Degree should be the minimum entrance requirement for this course. Concurrently the senior teachers colleges should add a year to the bachelor of teaching course designed to prepare young men for supervisory and administrative work. This course, leading also to a Certificate of Educational Administration and Supervision, should be open only to graduates with a bachelor of teaching degree and have the purpose of training person for supervisory positions in the inspectorate. Such persons, however, should be encouraged to have periods of experience in class room teaching in primary as well as in secondary schools.

119. A third group for which special provision should be made is composed of prospective teachers of vocational subjects—industrial, commercial and agricultural. For the next several years most of these will be recruited from technical high schools, polytechnics and agricultural training institutions. Satisfactorily trained in their respective vocational fields, they will not yet be qualified in teaching methodology. It is proposed, in the long run, that these prospective vocational teachers be encouraged to take the certificate of teaching course. Until that time, since it is necessary to staff these specialised positions as rapidly as possible, three-month courses should be devised particularly for this group.

120. Finally, attention should be given to the training of physical instructors. The desirable emphasis that many authorities are seeking to give to physical education requires special courses at the degree level. There is an excellent college for physical education in West Pakistan, training both men and women. The Plan makes provision for the support of such courses in East Pakistan, one for men and the other for women, in two existing degree colleges.

### Educational Research

121. The normal schools and teachers training colleges have limited their work to the training of primary and secondary school teachers. They have not engaged in education research. As a result, instruction has become rigid and stereotyped. The staff for the normal schools is recruited from among the graduates of the teachers' colleges who have had several years of experience of teaching in high schools. This tends to be a sterile system because nothing new is being added. The result is seen in unsatisfactory teaching in both primary and secondary schools. The demand for educational expansion requires additional normal schools and teachers' colleges, but the quality of teaching will not improve without an infusion of new ideas, new methods and new information based upon

research. The training institutions need reorientation and new inspiration. To this end each university should be encouraged to develop and strengthen a faculty and a department of education and to prepare students for the master's degree in education. As rapidly as possible, the staffs of the teacher training colleges and the normal schools should be recruited from among these masters of education.

122. In addition to this extension of teacher education, it is proposed that at least one university in each Wing establish, within its department of education, an Institute for Educational Research. Each Institute should be staffed with a small group of highly qualified research professors and it should have funds to support research projects, issue publications and hold conferences. The Ph.D. degree in education should be offered by the departments in which the Institutes are established. The chief functions of the Institute would be :

(*a*) To foster and conduct research in educational methodology, curriculum development and testing, with particular reference to the needs and capabilities of the children.

(*b*) To publish the results of its research and to serve as a clearing house for information about educational development at home and abroad.

(*c*) To maintain liaison with the colleges and normal schools for the purposes of sharing information about problems and trends and of providing guidance in the improvement of their curricula, text books and instructional methods and of sponsoring conferences of college and normal school teachers, head masters and principals.

(*d*) To train specialists in the several branches of education for teaching, research and administration ; in curriculum, primary education, testing, vocational education, methods of teaching, supervision, etc.

123. The object of this emphasis on research and leadership in teacher education is to infuse new life and inspiration into the teacher training institutions and, through them, into the teaching profession. Re-orientation of education, for which there is a universal demand in the country, must be a slow process and has necessarily to be started with the teachers. All are insistent that the schools of the future must release the inherent intellectual and manual creativity of our children, imbue their minds with our spiritual and moral values, familiarise them with democratic processes and acquaint them with the possibilities of social reconstruction. All are emphatic that present teaching methods and materials, devised in the past for another purpose will not achieve these ends. The teachers cannot change their methods on order ; they can make improvements only if trained in the techniques and if given constructive guidance and supervision. The responsibility for this teacher training and assistance falls heavily upon the teacher training institutions ; the old stylished courses in educational history, theory and methods will not suffice. The teacher, formerly trained to teach children by syllabus only must now be shown how to relate the learning process to high moral standards, to family and community living and aspirations and to the genius of each child.

124. As the institutes for education research develop their programmes, they should be able to help the colleges and normal schools renovate their old courses and substitute new ones, based on knowledge of our psychology and environment. University graduates in education will provide the future staff of these institutions. Many junior and other lecturers in the universities, colleges and normal schools are not sufficiently committed to the profession of education. The more intensive and advanced training of college and normal schools teachers at the M.A. and Ph.D. levels will help to alleviate this situation. Ph.D. students may be used during their courses of study to teach courses and perform

other services for colleges and normal schools. From the beginning then, and increasingly with time, the Institutes should be able to inspire and lead the educational profession to a realisation and accomplishment of its high mission.

## VII.

## ORGANIZATION AND ADMINISTRATION OF HIGHER EDUCATION

125. The strategic point in education lies in the colleges and universities. These institutions set the tone for primary, secondary and specialized education. They train the teachers, lawyers, doctors, engineers, scientists, philosophers, agriculturists, businessmen and government officials who provide leadership and establish the standards for moral, economic and social life. They are responsible for conserving knowledge, for keeping abreast of new knowledge and for adding to knowledge through research. Hence, our most diligent attention must be directed towards higher education. Such attention will be rewarded by the most immediate results in the implementation of the entire development Plan, and will bring the most lasting results in the structure and excellence of education, public administration, science, agriculture, industry and business.

### Progress since Independence

126. The number of colleges in the country increased from 90 in 1948-49 to 132 in 1953-54. Of the 132 colleges, 81 are degree colleges, 12 of which offer post-graduate work to the master's level and 39 are intermediate colleges. The degree colleges also offer work at the intermediate level (the eleventh and twelfth years). Their combined enrolment in 1953-54 was 60,075—5·1 per cent of those in high schools and 1·2 per cent of those in primary schools. Twenty seven of the intermediate colleges and sixty four of the degree colleges are private—64 per cent of the total. The government colleges are financed and managed by the Provincial Governments through the departments of education, while professional colleges in engineering, agriculture, medicine are usually financed and managed by Government through the ministries of public works, agriculture and health. The private colleges are subsidized by government grants.

127. Our colleges do not hold their own examinations or grant their own degrees, as was the custom in the Muslim system of education in India. These are functions performed by the universities. This practice in higher education was established by the Wood Memorandum of 1854 which provided that universities be created with the function of conferring degrees or diplomas upon persons who had pursued a course of study at an affiliated institution and passed a prescribed examination. Although there was incidental provision for such universities to create professorships and offer instructions in various branches of learning, universities in India for almost thirty years continued to be purely affiliated bodies.

128. These universities had their origin in the Macaulay Minute and the Bentinck Resolution of 1835. The Bentinck Resolution stated that the " great object of the British Government ought to be the promotion of European literature and science amongst the natives of India and that all funds appropriated for the purposes of education would be employed on English education alone ". The universities were modelled by the British upon the University of London. English was established as the medium of instruction and financial support was withdrawn from the madrasahs. Hence there was a sharp break in the pattern of higher education as encouraged by the Muslims from the middle ages, represented by madrasahs (colleges) which offered instruction in grammar, rhetoric, logic, geometry, algebra, astronomy, natural philosophy, medicine, theology and poetry.

129. At Independence, there were only two well-established universities—Punjab and Dacca, although a third, the University of Sind, had been authorised a few months before. There are now six universities, all of them authorised to perform examining, affiliating and teaching functions.

130. *Punjab University* at Lahore, established in 1882, is our oldest university. This university is primarily an examining and affiliating institution with only three colleges of its own—law, commerce, and oriental languages. However, it offers post-graduate instruction in various fields, and seven new departments have been added since Independence. Forty-five colleges are affiliated to this University.

131. *The University of Dacca*, established in 1921, was a teaching and residential university until Independence, when it was made also the affiliating institution for all colleges in East Pakistan. The university suffered a heavy loss by the migration of non-Muslim teaching staff in 1947, but has managed to continue its instruction programme. Fifty-six (eight professional and fortyeight non-professional) colleges are affiliated to the University. Six new departments have been created since Independence.

132. *The University of Sind* was established in 1947, only a few months before Independence. Created as an affiliating and examining university, it also provides academic instruction for a small number of resident students. The University was moved to Hyderabad in 1951 as one of the several consequences of the establishment of the national capital at Karachi. Sixteen (seven professional and 9 non-professional) colleges are affiliated to the University. Fifteen teaching departments offer post-graduate instruction.

133. *The University of Karachi* was chartered in 1950 by special legislation with the Governor-General as Chancellor. It is an affiliating and examining University and also provides instruction in several fields. There are now sixteen colleges (six professional and ten non-professional) affiliated to this institution. Post-graduate courses are offered in fifteen subjects.

134. *The University of Peshawar* was established as a residential and affiliating institution in 1950. The jurisdiction of the University was extended to the States of Swat, Dir, and Chitral in 1951. A new campus complete with buildings has been constructed. Peshawar University is unique in that the professional colleges are integral parts of the university and under its administrative and financial control. Fifteen (four professional and eleven non-professional) colleges are affiliated. The University now has twentyfive departments.

135. *Rajshahi University*, established in 1953 is our youngest university. It is the affiliating and examining authority for twenty colleges in the north of East Pakistan. This university was greatly strengthened by many Muslim teachers from the University of Calcutta. Residential facilities are now being constructed.

136. The Pakistan Educational Conference of 1947, through its University Education Committee, expressed, great dissatisfaction with higher education :

> " It has been felt for a long time that the system of University education comprising the syllabuses, curricula, examinations and teaching methods is unsatisfactory and requires thorough review in order to bring it into line with our educational ideals and needs. Such reviews have been undertaken in the past by various committees and Commissions, but few practical steps have been taken to implement their recommendations. The Committee strongly feels that we should without delay, lay the foundation of our educational system anew and urge that Government and Universities should take immediate action towards that end".

137. The Six-Year Plan for Educational Development in Pakistan criticised the existing arrangements for higher education in equally strong terms, stating that academic standards were low, that buildings and equipment were inadequate and that teaching personnel was on the whole poor. Special reference was made to the deficiencies in science instruction. The universities were characterised as being examination-ridden and as having failed in their fundamental function of promoting research.

138. It is not difficult to understand the basis of these indictments. First of all, we have greater expectations of our higher education system than ever before. A system developed by a colonial government and restricted to a small proportion of the population could not hope to serve the new nation, no matter how well financed or administered. The system was, in fact, neither well financed nor particularly well administered ; and what was essentially wrong was its concern with the form rather than with the substance and quality of learning. At Independence, to make matters worse, hundreds of teachers went over to India and subsequently to government and industry. Many students withdrew, but many more refugee students clamoured for admission. The excitement of political and social change threw students and teachers into a state of turmoil. Since that time the physical expansion of colleges and universities has far out-stripped the qualitative development of education.

139. Moreover, the colonial system of higher education was designed to supplant the traditions of Muslim learning by those of English and European learning, to emphasize curricula which would best prepare young men through literary education for posts in colonial business and government, and to impose a university and examination system lifted bodily out of the English practice then in vogue. While the English practice was modified substantially with time in the country of its origin, no improvements or modifications were made in colonial India ; those that were made tended to accentuate some of its weakest features. We recognise the rich alluvium deposited by the great stream of Western thought and scientific achievement ; but our educational development must be firmly rooted in the enduring sub-soil of our own culture.

140. The Plan period must be a period of consolidation, improvement and raising of standards. Some very major changes must be brought about to achieve the kind of higher education which people are demanding. These changes are of two kinds (a) improvement in the content and quality of instruction and research, discussed in the next section, and (b) reorganisation of the administration and the financing of institutions. The kinds of changes which need to be made in the organisation and administration of higher education have received much attention from such bodies as the Inter-University Board the Punjab University Commission, and the Central Advisory Board for Education. It remains to crystallize the suggestions made and to undertake vigorously the task of introducing them.

### An Integrated System of Higher Education

141. The two requisites of a stable, vigorous and economically sound system of higher education are : (a) a form of co-ordination and integration among the colleges and universities which encourages the development of strength and high standards and avoids wasteful competition and duplication, and (b) freedom, within the limits of general government policy, for the colleges and universities to make administrative and academic decisions pertaining to the conduct of educational institutions which will preserve and promote the spirit of scholarship and research. A corollary of these principles is that the administrative and policy heads of the colleges and universities must be held accountable for the excellence of their administration, and the moral and intellectual standards of their institutions.

142. Neither of these requisities of a sound system of higher education exists in our country today. With a few notable exceptions, the responsibility for the management of higher education is so diffused that it is difficult, if not impossible, to assign accountability for existing shortcomings. Higher education consists of poorly co-ordinated groups of private colleges, government arts and science colleges, and government professional colleges. For the most part, the professional colleges are branches of the departments concerned : engineering colleges of the departments of public works, medical colleges of the departments of health, teacher training colleges of the departments of education, and agricultural colleges of the departments of agriculture. Although the government arts and science colleges are in the departments of education, private colleges also are subject to close government supervision as a condition of receiving grants upon which almost all of them are dependent. Although there are varying methods and degrees of control, in the last analysis, the several government departments independently decide the budgets of the several colleges and select the teaching as well as the administrative staffs. Thus, there are not one but several systems of higher education in each Province. New colleges and new courses may be and are established without consideration for existing facilities or needs. Standards of equipment, personnel and instruction vary widely. Developed without sufficient regard for each other, the colleges are not in a position to share teachers, students, courses and facilities, which results in much unnecessary duplication and less than full use of existing resources.

143. This situation is unsatisfactory because of the inherent wastage of money, facilities and personnel. It is educationally unsatisfactory, in addition, because until institutions of higher education become primarily educational in nature and an integral part of a unified system of education rather than adjuncts of government departments with limited functions, they cannot achieve their highest purpose of intellectual, academic and professional growth and service to the country. The present system is a direct inheritance of the colonial system, which had the purpose of training people for specific jobs by specific government agencies. The " professional " colleges were established, and survive, as high-grade technical branches of government departments with the particular and narrow function of training students for established positions in those and related departments. In an independent country, however, which desires to develop its men and women for a fuller and higher life, it is the function of a professional college to prepare its students not only for specific technical duties essentially limited in scope and purpose but also for playing their full part as members of progressive society and for a successful and fruitful life individually and socially, with capability for their own growth as well as for contributing to the growth of the community.

144. The integration of higher education into one system, in which educational standards and values are preserved and promoted, can be achieved by affirming the leadership of universities and making it real and effective as well as progressive and beneficial. The appointment of Grants Committees with the duty of evaluating and originating long range plans and assisting the universities and colleges financially, educationally and administratively to put them into effect, would create favourable conditions for initiating and accelerating this process. We do not yet foresee the time when the individual colleges would emerge as independent institutions depending for the support of the community on their ceaseless effort to improve their standards by trying new ways of approach through studies and experimentation. Our universities will continue to command extensive territorial jurisdiction for the purpose of prescribing standards, curricula and syllabi and holding examinations. Simultaneously they will continue to deliver their activities in a directly constructive manner by developing their teaching and research functions on a broad and comprehensive basis at their respective headquarters centres.

We consider that the universities should be supported in promoting integrated systems on the following lines :

(1) They should be put unambiguously in the position of leadership in organising and developing an integrated system at their headquarters in which maximum use is made of all resources whether in the colleges or in the universities. Post-graduate teaching and research should be directly under their control in order that fullest use is made of the limited resources in terms of libraries, laboratories and superior staff.

(2) The Peshawar University offers a model on which professional colleges located in university centres should be incorporated in higher educational organisation. This measure is feasible and should be adopted in the interest of preserving and promoting educational values.

(3) The Leadership to be provided by the universities for institutions which cannot form part of the headquarters organisation has to be developed in accordance with its functions and responsibilities as a purely affiliating and examining body. The universities should be suitably staffed to enable them to perform their functions in this respect efficiently. It will be concerned with three types of institutions each of which requires separate treatment : private arts and science colleges, government arts and science colleges, and professional colleges. We suggest that their problems could be approached on the following lines :

(*a*) The universities should have proper arrangements for the regular inspection of all institutions. The reports should be followed up by effective action.

(*b*) It is particularly necessary in respect of private colleges that conditions of service of their teaching staff should be fixed with the approval of the university. Members of the staff should have the right of appeal to the university against measures of punishment.

(*c*) The university should have the right to send its representatives to the meetings of managing bodies to explain its views.

(*d*) Whenever possible, professional colleges should be transferred to the control of ministries of education to emphasise and develop their character as educational institutions instead of as training adjuncts to technical departments.

(*e*) For government colleges, the Ministry of Education should set up advisory committees with representatives of the university, the government and the institutions themselves to consider all problems concerning them and to make recommendations to the government. This is desirable to ensure that the values and principles which inspire our higher educational system are not denied to any of its parts. The universities are agents of the governments and the nation and not of the departments of government, as such they must be held responsible for guarding, promoting and developing the values and principles which inspire the nation. It is inevitable that a government department should make, by and large, and administrative approach only which is inadequate. All talent and learning available to the nation for guiding and developing education on the desired lines should be concentrated in one place. This place positively and undeniably is the university : the potential centre of learning and research through which alone the nation can hope to express and develop its spiritual and moral aspirations and ideals. The shortcomings of universities are our own shortcomings and whatever they may be, the failure to support them must be regarded as a disservice to the present and future generations of Pakistan.

(*f*) All grants to private colleges should be channelled through the universities. Allotments to government colleges should be fixed on the recommendations of the advisory committees we have suggested. With the formation of University Grants Committees the sytesm will need some adjustment but the essential principle of the leadership of universities should be preserved.

The measures we have outlined above are in conformity with the views held and expressed by our leading educationists. We are confident that action on these lines will help establish an integrated educational system in the country to the benefit of the nation.

**Clear Distribution of Responsibility**

145. This proposal for a co-ordinated higher, education under the leadership of the universities, requires universities which have the power, the responsibility and the strength to furnish the necessary leadership in achieving excellence in college and university education. The universities are organised as separate statutory bodies and their autonomy is recognised in principle. In practice, however, they are meticulously controlled by the government and are so unwieldy in administration that vigorous action to correct deficiencies is difficult to initiate, and accountability for failure is almost impossible to assign. Here again, controls are exercised at the wrong place and inefficiently, while necessary controls at the right place are missing.

146. It is proposed that the universities be freed from the detailed administrative control of government departments, that they be provided with effective and responsible managing bodies, and that they be held strictly accountable to government for adherence to government policy and for excellence of performance. These proposals can be implemented by :

(*a*) Laying down (*i*) clear but broad policies which the universities must follow and (*ii*) programmes and targets which they have to achieve.

(*b*) Authorising each university to enact its own statutes concerning the formation of departments, standards of affiliation, courses of study, modes of administration, etc., to handle its own financial transactions and to make its own appointments— all without prior government approval but within the limits of policies and programmes sanctioned by the Government.

(*c*) Vesting these and other powers for the conduct of university affairs in a reconstituted syndicate of a reasonable size. It may contain not more than two or three persons holding government offices but none from amongst those responsible directly for advising the government on the policies and programmes of higher education. The senate, which is a large and representative body, should meet annually to review the budget and programme and to make advisory recommendations to the syndicate.

(*d*) Holding the syndicate strictly accountable to the government for the discharge of its functions. For this purpose it should prepare and publish an annual report and financial statement, publish its statutes, and announce its appointments and other decisions of importance. The annual reports and financial statements, giving an account of the state of higher education and the progress made in giving effect to the policies and programmes in this important field, should be placed before the legislature, which should be given an opportunity for discussion if it so desires. Official nominees on the senate and syndicate should be fully aware of the policies and programmes approved by the government for the guidance of the universities, and they should be held responsible for making a report to the government of serious failures on the part of the university. The government should retain the power of revising, within a reasonable period, any decision of the syndicate on the ground that it transgresses a clear provision of the law, or involves an abuse of power likely to result in gross injustice or maladministration, or is calculated to defeat the policies and programmes laid down by the government. Before taking such action the government should give an opportunity to the university to explain the reasons for its decision. The orders of the government to reverse a decision of the university should be passed with the approval of the cabinet and should be published for public information with a clear and full statement of reasons.

147. We believe that the introduction of this system of checks and balances will tend to inculcate the needed sense of responsibility on the part of universities and affirm unequivocally the responsibility of the government if any maladministration or abuse of power takes place. The provision for publishing the decisions of the government will ensure that they will be reached after due care and deliberation and at the highest level. We wish to emphasise that our proposal that the decisions of the university should not be set aside except by orders of the cabinet, and that they should be published for general information with a full statement of reasons, is an essential part of a system in which the universities will be free to perform their responsibilities to the nation with a due sense of responsibility and in which the government cannot disclaim responsibility if things go seriously wrong and the prescribed programmes fail to be achieved.

148. There are now six universities, four of which are of recent origin. They are adding teaching departments rapidly, perhaps too rapidly, and have further plans for expansion without sufficient consideration for the situation of higher education as a whole. Schemes to create still other universities should be held in abeyance until the existing universities gain the needed strength in facilities and personnel. It would be a mistake to spread the limited staff and equipment resources available for universities even more thinly. The very large requirements of new university buildings and campuses must be met over a period of years and in conjunction with the studies of needs in higher education. In this connection, the location of existing as well as new universities must be carefully considered. The feasibility and soundness of schemes to move universities to new campuses are usually open to serious doubt because such locations are unsuited to the function of co-ordinating the use of college resources, because of excessive initial and continuing costs, and because of the further handicaps that would be created for the poorer students.

149. The Pakistan Educational Conference of 1947 was fully alive to these problems when it recommended the creation of the Inter-University Board. That Board, brought into being by a resolution of the Ministry of Education in 1948, is composed of the Vice-Chancellor and two other representatives from each university. It is charged with the duty of exchange of information and views among the universities ; liaison with foreign universities ; encouragement of private endowments ; removal of inter-provincial barriers and inter-university competition ; periodic visits to the universities with a view to co-ordinating their activities ; equalisation of degrees and diplomas ; standardisation of curricula and syllabi ; inter-change of staff and students ; and co-ordination of facilities for scientific and industrial research. Although this Board meets annually, and sometimes oftener, to consider common problems of policy and practice, none of its specific functions has been effectively discharged. One of the main reasons for this failure is that the full-time Secretary and staff proposed in the resolution have not been provided. This staff should be created promptly. Also, the Board should require to publish annual reports of its activities and progress in accomplishing the highly desirable purposes for which it was created. The Central Government should consider these reports in consultation with the Provincial Governments, communicate their comments to the Board and publish them for public information.

## Financing Higher Education

150. Another major reason for lack of progress in inter-university co-ordination and planning is that these functions are not related to the budget process. Unless there is insistence that the contemplated planning and co-ordination be accomplished before budget proposals are made, there is no way to assure that those processes will be satisfactorily completed. We propose the creation of provincial university grants committees and a central university grants commission to meet this and other deficiencies in the control and financing of higher education.

151. Each Province should create a university grants committee provided with a whole time chairman and a secretary. Its functions would be :

(a) To prepare long-range plans for the development of higher education and to submit them to the government for approval.

(b) To advise the government in respect of the budget requirements of higher education with due regard to the long-range plans and suggest the amounts of recurring and non-recurring grants to be made.

(c) To receive the government grant in block and distribute it among the various beneficiaries to meet their needs on the basis of the actual progress of their plans. The functions of the committees will extend to all institutions, universities, arts and science colleges, and professional colleges, whether private or public. The grants should be made for a period of three years to guarantee the undisturbed fulfilment of the plans to which they are related. At the same time, care should be taken to prevent the funds being retained by any institution in excess of immediate needs.

152. In order to discharge its functions, the committee should be empowered to visit the institutions and to call for any information or documents it requires. The committee should also be empowered to appoint sub-committees of non-member experts to advise it on the several aspects of its work. One such sub-committee should develop long-range building plans in keeping with authorised schemes of development. The committee should retain the services of a firm of consulting architects to supervise and assist with the design of building and campuses. No new specialized colleges or university departments should be approved without a finding that such colleges or departments do not unnecessarily duplicate insitutions already available and that they are consistent with arrangements for university specialisation worked out by the Inter-University Board.

153. These grants committees should assist each college and university to increase its financial resources from private donations and endowments. Higher education the world over has been developed by an informal partnership of government and private enterprise. It is highly desirable that each institution develop an endowment fund from unrestricted private gifts, the income from which may be used to enrich the institution's facilities and curriculum. Such gifts should be solicited from graduates, and from business and industry. In addition, systematic relationship should be entered into with the various segments of industry to provide financial support for specific schemes of mutual benefit to industry and education. Grants might be made for scholarship and teaching chairs in particular fields, or for research of immediate concern. A co-ordinated approach to private philanthropy is desirable to avoid undue competition among the colleges and to give assurance to the donors that their contributions will be wisely spent.

154. In this connection it should be noted that private colleges make up 64 per cent of the total number of colleges. It is hoped that as time goes by an even larger percentage of college education will be privately supported. This arrangement will contribute to the freedom of experimentation which is the essence of higher education ; it will broaden

the base of citizen participation and support, and will contribute to the autonomy of higher education. Government grants to private colleges, now made on an *ad hoc* and irregular basis, should be systematised and related to a national purpose ; they should be made only for temporary periods. The private colleges should be encouraged and aided to stand on their own feet rather than to remain dependent upon government grants.

155. Although the universities, with the exception of Karachi, are financed primarily by the Provinces, the Centre has been making *ad hoc* grants in support of university education. It is clear that such financial assistance must continue to supplement the resources of the Provincial Governments to give concrete recognition to the Federal Government's special interest in higher education and to encourage development in conformity with the over all social and economic plans of the country. It is proposed that a central university grants commission be created composed of a chairman and four members, two from West Pakistan and two from East Pakistan, distinguished by scientific, professional and intellectual achievement. The chairman and the secretary should be whole-time officers. No member should concurrently hold a university or college post. The function of the commission will be to assist the provincial committees in the formation of their plans, the determination of policies and targets and the assessment of their needs ; make recommendations to the Central Government regarding the basis, purpose and amounts of grants that should be made from federal funds towards the plans of the provincial committees ; receive and distribute the grants sanctioned by the Central Government and obtain reports on the progress and prepare its own report to the Government on the state of higher education in the country.

156. The central grants commission would not give unconditional grants because this would prevent the Central Government from exercising influence on the direction of development. The Central Government would like to see that progress is made in accordance with approved plans and use its resources to promote that objective.

157. With the appointment of provincial university grants committees and the central commission the ability of the universitities to move forward with vigour and confidence will be increased and a more effective and favourable environment for their co-ordinated and orderly growth will be provided. By holding the Inter-University Board accountable for the performance of specific functions, the government will be assured that high standards will be achieved without having to set and enforce those standards itself. Our recommendations are intended to promote a climate of understanding based on partnership among the Federal Government, Provincial Governments, the universities and the colleges in performing a most vital service to the nation and to affirm the principle of responsibility instead of control and subordination. We believe that the implementation of these proposals will enable all institutions of higher education to grow and expand with confidence in their mission and in their ability to fulfil it.

## VIII

## TEACHING AND RESEARCH IN COLLEGES AND UNIVERSITIES

158. To improve the content and quality of college and university instruction and research is the main objective of the organisation of higher education. Colleges and universities must continue to improve their curricula, syllabi and text books in order to keep them abreast of new knowledge and to assure their relevance to the changing needs of the students and the nation. Intensive attention to these matters is required at present in order to complete the process of adapting our action to the requirements of goals as identified in the context of our independent national life and the consequent needs for trained personnel and organised research.

159. Higher education is now composed of two intermediate years after matriculation—the eleventh and twelfth ; of two years leading to the bachelor's degree—the thirteenth and fourteenth ; of another two years leading to the master's degree ; and of two or three years additional work leading to the doctor's degree. Some colleges and universities also offer a three-year honours course above the intermediate level. It is the goal of our educational leadership to lengthen the educational process by adding one or both of the intermediate classes to secondary education and by adding a third year to the course leading to the bachelor's degree. This step would greatly strengthen secondary education in its efforts to establish a system more useful to those who do not go on to college. It would also permit the colleges and universities to develop greater unity in higher education. During the Plan period, however, this change would be difficult to introduce. The money, equipment and personnel required are needed more urgently to improve the quality of existing courses, and for the upgrading of standards to produce better matriculates and graduates. In addition, longer courses instituted at this time would result in a diversion of trained men and women from the many urgent development programmes. The transition should be viewed as a gradual process in which all opportunities that present themselves should be seized for advancing towards the goal until resources permit its full achievement.

### Curriculum Deficiencies

160. Four major problems concerned with curriculum have been emphasised by various committees and conferences which have revised the situation:

(*a*) College courses before Independence, being deficient in instruction in Islamic history, literature, and morals, failed to inculcate sufficiently the attributes of character and idealism. Much emphasis is now being placed on this type of instruction, as may be seen in the creation of departments and institutes of Islamic studies, and such emphasis should be encouraged.

(*b*) English is the medium of instruction in the colleges and universities. Many, probably the majority of students, however, have such an inadequate knowledge of that language that they suffer a severe handicap and the level of teaching tends to be lowered to the level of language comprehension. The remedy is to emphasise practical, not literary, English at the intermediate level and to insist upon a high standard of reading, writing and speaking comprehension for admission to the degree class. Thereafter, English should not be a compulsory subject dominating the college curriculum. To accomplish this result, however, it is necessary for teachers of English to renovate rather completely their methods of instruction and a properly thought out scheme on a national basis should be instituted to help them. The purpose of the scheme should be to teach teachers the methods of assisting pupils to grasp salient ideas and information presented in oral and written English, and to express what they learn and what they think in simple workmanlike written and spoken English. Much research and experimentation will be required to carry out this scheme—functions which may suitably be assigned to the proposed Institutes of Education.

(*c*) Because of their origin, most colleges, both Government and private, are deficient in the teaching of physical and biological sciences. This deficiency has had the effect of leaving the so-called educated man actually uneducated in a large area of knowledge and life. It has had the additional serious effect of leaving the country without a sufficiently large supply of men and women prepared to perform the many scientific tasks required for the industrial and agricultural development of the country and for the improvement of the health and welfare of the people.

(*d*) The deficiency in science education exist, at the post-graduate as well as at the degree level. The Plan provides for the purchase of equipment and supplies, for the teaching of science and the purchase of books and periodicals for libraries. This should in due course enable the universities to take the leadership in science education throughout the country and to undertake advanced instruction and basic research as a foundation for the nation's future scientific progress.

161. Many, indeed, most of the colleges are overcrowded, under-staffed, and poorly equipped. As a matter of policy, this situation can be alleviated somewhat by selective enrolments to keep within the number which can be reasonably accommodated in the existing institutions. This, however, would not go far to relieve the problem and additional buildings will have to be provided to meet the existing needs of degree students and to satisfy the growing demand for college education. In undertaking this building programme, it is proposed that, for the most part, new structures be provided at suitable sites for degree students, thus relieving the present college buildings of some of their surplus students and collecting the degree students in buildings of appropriate size. Some additions to existing buildings which would accommodate intermediate colleges must be made as well. This approach to the problem of building is consistent with the ultimate goal separating intermediate from degree classes so as to make the former a part of secondary education structure. At present both the intermediate and degree classes being joined together in the same building as one integrated system of university education, neither of them lends itself conveniently for development with its own distinctive aims and purposes.

## Examinations

162. The examination system is generally recognised as one of the unsatisfactory features of higher education and the major institutional barrier to higher learning. It is a formidable obstacle in the path of curriculum revision. Accompanied as they have to be by prescribed syllabi and text books, the centrally prepared external examinations stifle teacher and college initiative and experimentation. The slow and cumbersome process which is required to revise syllabi and change text books forces teaching to lag behind the current state of knowledge and inhibits the introduction of new knowledge and new ideas by the teacher. The teacher himself has little or no incentive to keep himself or his students up-to-date. Exclusive reliance upon the examination system also has adverse effects on the teaching and learning process. The teacher is judged by the number of his students who pass an examination which is prepared by someone else, and not on his success in inspiring their understanding and independent thought. The student's diligence and the excellence and creativeness of his work are not the subject of judgment or guidance by the individual teacher, by the college—or indeed by any one. It is small wonder that about three-fourths of the degree candidates fail to pass their examinations. Reading for two years without discipline in preparation for a single examination does not encourage habits of industry and thought. On the contrary, the system develops pressure from the students for procedural changes—more time, simpler examinations, lower passing grades, etc.—all resulting in lower standards and discipline.

163. The examination has come to serve other than education purposes—chiefly as measure of qualification entitling students to admission to a higher level of education or for government or other employment. It has become an end in itself, rather than the means to an end, that is, to guide the students and the teacher, along with other measures, in determining what supplementary course of effort is desirable in the student's growth. Many students, if provided with sufficient guidance and measures of progress, would pass final examinations, rather than fail. Other students would realise in a short time

that their aptitude or interest did not warrant their remaining in college. Great intellectual and economic savings could be made by placing the external examination in its proper perspective.

164. These and other deficiencies of the examination system have been analysed in great detail by individual educators and distinguished committees including the Inter-University Board. Remedies along the following lines could be instituted by the universities with advantage :

(*a*) University examinations should be limited to degree examinations. As noted in the section on secondary education, boards of secondary education should take over the responsibility for matriculation and eventually for intermediate examinations, and such examinations should be in terms of student progress in accomplishing the particular purposes of secondary education.

(*b*) Only colleges which satisfy reasonably high standards of library, teaching and laboratory facilities, qualifications of teachers and financial stability should be recognised for affiliation to the universities and such affiliation should be reviewed on the basis of an inspection made not less frequently than every third year. Only affiliated colleges should be permitted to present students for degree examinations ; this should not restrict any facilities that may be permitted for private students. Only affiliated colleges should be eligible for grants-in-aid, but a grant-in-aid should not be a condition of affiliation.

(*c*) The principles for regulating admissions into the colleges and universities need careful study. Professional colleges usually have satisfactory arrangements based on test and interviews in addition to other prescribed conditions. There is a general feeling among educationists that some process of selection should be introduced for regulating admissions into the universities and their affiliated colleges. This is considered desirable to ensure that only those students are admitted who are expected to derive maximum benefit from the limited higher education facilities. Support is lent to this view by the large numbers of casualties due to failures or other reasons. Several methods of approach have been suggested for this admittedly important problem, but none of them is free from serious objections. A refusal to admit third division matriculates would bar the door to many who could be expected to fulfil reasonably high standards in the subjects which they proposed to pursue in the universities. Some colleges, which admit first and second division matriculates only, do not show distinctly better results than others where the majority are third divisioners; this would tend to show that there is no real substitute for personal attention by the teachers and hard work by both the teachers and the students. A general exhortation that all institutions should arrange their own tests based on past performance, teacher evaluation, aptitudes, etc., would be ineffective against influential pressures on colleges which need such changes most. The problem bristles with difficulties, but it is nevertheless of great importance for achieving reasonable standards in higher education and for making the best use of our limited resources. A policy of drift, resulting from the seemingly formidable character of difficulties, is leading to serious wastage in all forms, one of them being the misdirection of pupils who would do well to look elsewhere in preparing themselves for future life. We recommend that the Government should invite a committee consisting of vice-chancellors and a few selected principals of colleges to consider this matter and make recommendations on which the Central Government in consultation with Provincial Governments could announce their considered views for the guidance of universities and colleges.

(*d*) Affiliated colleges should present students for degree examinations, provided that in their judgment the students have satisfactorily completed the prescribed course of study. They should certify that they have made systematic progress over the whole period through prescribed courses of study as measured by teacher evaluation, class room work and reading objective tests and aptitudes.

(*e*) Principals of colleges should be encouraged to make suggestions regarding syllabi and text books and the universities should have some system of consulting them before decisions are taken.

(*f*) The universities should encourage the institution for B.A. degree examinations of the unit course system of teaching, each unit extending over 12 to 18 weeks. Under this system pupils would be able to concentrate on one subject at a time and complete it by satisfying prescribed test, which would include examinations, credit for work in the class, and cumulative records of achievement.

(*g*) In prescribing the syllabi for the degree examination and administering the teaching, emphasis should be put on understanding and not on memory. In achieving this aim the collaboration of the colleges should be secured and a persistent policy and campaign should be pursued over a period of years.

(*h*) It would be a common place to say that teaching in higher education institutions should not be dominated by the qualifications prescribed by employing authorities. This tends to distort the purpose and perspective of education. Government and private employers should aim ultimately to devise their own particularised measures of job qualifications. India is considering whether the conditions of a university degree should not be eliminated from the rules for admission to superior services. A measure of this kind, if found practicable would go a long way to free the minds of pupils from the spectre of employment specifications of a mechanical character, distinguished by labels only. The conditions are not favourable for making such a change in the immediate furture, but in view of its importance it needs to be studied and borne in mind.

165. It is believed that revision of the examination system in these ways will encourage the student to learn rather than cram for an examination ; it will encourage him in better habits of study and workmanship. Teachers would be encouraged to show greater initiative and take more responsibility. Greater diversity and experimentation in college curricula and teaching methods would be possible.

166. A re-orientation of the system on these lines, would not abolish the external examination. It would, however, make the examination only one measure of student accomplishment while encouraging, though not requiring, teacher and college initiative in improving teaching and measurement techniques and in keeping the curriculum alive and vital with new and important information and ideas. Finally, and most significantly, these changes would provide a much improved environment for the student to develop qualities of industry, intellectual curiosity, and moral strength. The revision of the examination system along the above lines will remove the greatest single impediment to the growth of excellence in teaching and learning in our colleges and universities.

### The Role of Research

167. Research is one of the paramount functions of the university. Although universities provide guidance and leadership to colleges through the processes of affiliation and examination, these processes would be sterile and the entire educational system would

stagnate were not provision made for advancing the frontiers of knowledge. Moreover, the applied and technological phases of research will falter if opportunities are not provided for fundamental research. Finally, advanced learning at the master's and particularly the doctor's level is empty unless it is combined with research and training in the techniques of inquiry. University instruction should be developed only in connection with research. The Pakistan Education Conference invited attention to the role of fundamental research in universities. We believe that for some years the resources in men and money available for fundamental research would remain limited and more attention will generally be given to the adaptation of scientific advances for use in our country. Nevertheless it is essential to support fundamental research in the universities. Some valuable work is already being done by some of them but research needs to be promoted and strengthened in all universities wherever opportunities are available and facilities can be provided. Those who are inclined towards such research and well fitted for it should be encouraged by research stipends as also scholarships for students to work in foreign universities. Where facilities in any university are adequate for this purpose, eminent scientists from abroad should be employed for guiding research students and laying sound foundations for resarch.

### Scientific and Industrial Research

168. That same body recommended the formation of a Council of Scientific and Industrial Research to develop applied research. In the wake of World War II a Council of Scientific and Industrial Research was established in India to achieve the integration of science with industry. With the partition of the country, that Council and its laboratories remained with India ; there was a complete break in these activities in Pakistan. A Council of Scientific and Industrial Research was, however, established in Pakistan as an autonomous body in 1953. The Council consists of prominent scientists, industrialists, and representatives of Provinical and Central Governments. The Council's function is to promote and foster scientific research having a bearing on industrial development and utilization of natural resources to the best economic advantage.

169. The various measures the Council uses for the discharge of its functions include full utilisation of the facilities available for scientific research at the several universities. The Council is establishing a central laboratory at Karachi and regional laboratories at Dacca, Lahore, and Peshawar to take care of industrial problems specific to the respective areas. Nucleus laboratories at these centres have already been established and have started functioning. As far as possible these laboratories will be located in proximity to the universities ; at Peshawar, for example the university has placed at the disposal of the Council one wing of its new science college building. These plans soundly conceived, should be executed as promptly as possible, and the development Plan provides for them. They will produce rapid results in the development of our resources. In addition, they will be of considerable benefit to the universities by greatly relieving them of the pressure of "problem solving " research.

### University Research

170. The universities, however, should lay careful plans to organise research programmes of their own. Each department should develop its research along with its instruction, since the two go hand in hand. The overall development will be greatly facilitated by the creation of research institutes—institutes of physical and biological research, institutes of research in the social sciences and institutes of Islamic studies. (Institutes for educational research are proposed in the section on " Education and Research in Teaching ").

171. Various allied departments of study in a university are grouped under faculties, but this grouping is more a matter of convenience of nomenclature. For instance, physics, chemistry and biology are grouped under the Faculty of Science, but in no university in Pakistan is the work of any of these consitituent departments co-ordinated with the work of other departments. Such research as is being done in the science departments of our universities is *ad hoc* and unrelated, often tending to be haphazard. It will be the purpose of the Institutes to plan research, to assign definite items of work to post-graduate and doctorate students and to continue to check up on their progress in a helpful, co-operative, and effective manner. This work cannot be entrusted to the dean of the faculty, who has no official status to co-ordinate the work of the departments of his faculty and is usually elected every year or every second year and therefore cannot ensure continuity in research programmes. Owing to these inherent lacunae he cannot be held responsible for organising and co-ordinating inter-departmental research.

172. These institutes should be inter-departmental in character so that full use will be made of existing staff and facilities. Each institute should be headed by an eminent scholar and governed by the professors of the universities. The functions of each institute should include the following :

(*a*) The stimulation of research by university staff and teachers ;

(*b*) Sponsorship of research requiring the participation of more than one department ;

(*c*) The making of research grants, or research appointments for short periods, to individuals or teams of individuals ;

(*d*) The collection and dissemination of information about research in progress and research needed for purposes of co-ordination ;

(*e*) The publication of research results ;

(*f*) The provision of library and laboratory facilities, or the supplementing of existing facilities ; and

(*g*) The co-ordination of activities with other research bodies, such as the Council of Scientific and Industrial Research.

173. The Plan contains provision for starting these research institutes in all universities and supporting them during the Plan period. It is emphasised that the institutes can get under way without waiting for the construction of additional buildings. Such buildings should be constructed only as the nature of the research facilities needed becomes clear. The immediate function of the institutes would be to encourage and support individual and group research with financial assistance on the basis of proposals made by teachers and students.

### Islamic Studies and Research

174. Additional comments about physical and biological research and about social science research are made elsewhere. A special reference should be made to Islamic studies also, because of their potential influence in building the character of our people. The Pakistan Educational Conference of 1947, and meetings of the Advisory Board of Education since then emphasised the significance to education of the Islamic characteristics of universal brotherhood, tolerance, and justice. The institute of Islamic studies should have the high scholarly purpose of rediscovering the truth in Islam and showing the applications of this truth to the solution of our problems.

175. Our religious educational centres in the undivided sub-continent served the useful purpose of preserving and disseminating Islamic knowledge ; but their approach was rigidly theological and did not help to interpret Islam in the midst of new social economic concepts of a revolutionary character arising in response to a dynamic situation in human history. The proposed institutes of Islamic studies will undertake study and research in the basic principles of Islam, the social and political institutions that have been used over the centuries to express and realise them in actual life, and the impact Islam has made on the human mind and the progress of civilisation. They will also conduct a survey of Muslim people and the institutions and problems and a critical and comprehensive study of the life of the prophet and his influence on the history, culture and morals of Muslim people.

176. Departments of Islamic studies seem to need a clearer sense of purpose and mission. Our social values and institutions face a challenge of an unprecedented character from the advancing tide of modern industrialism. There is no clear vision about the form and purpose of the society which will eventually appear as a result of the revolutionary changes that are in progress. Surely this should inspire those engaged in Islamic studies with an earnest purpose and a deep and overpowering sense of mission. Institutes or departments of Islamic studies in our universities should visualise themselves as centres from which light should radiate so that our sense of purpose and direction should remain firm and clear.

## Organisation of Research

177. Emphasis is placed upon effective organisation for university research because the shortage of qualified personnel and equipment inevitably means that the development of this function must evolve slowly. Priority must be given, during the development period, to applied research. By careful arrangements, however, a good start may be made. Every effort should be put forth, for example, to utilize the laboratories of the Council of Scientific and Industrial Research, of other government agencies, and of industrial concerns for the purpose of fundamental research by university and college staff and students. The location of the Council's laboratories near the universities will facilitate these arrangements. The co-ordinated specialization of the Council's laboratories will encourage specialization on the part of universities as well. In addition, the universities themselves, through the Inter-University Board, should co-ordinate their research plans so as to avoid unnecessary duplication and thereby cover more ground than any one of them could individually. Finally, each university should encourage the full use of the staff of its constituent and affiliated colleges and their libraries and research laboratories and facilities in its research programme. Research, well-done, is very costly and we cannot afford the luxury of multiplying laboratories and specialised staffs which compete with one another for equipment and personnel.

178. By taking these precautions, the universities can perform their most important role in research namely to set high standards of performance. It is more important that research be done thoroughly and decisively and with integrity, than that it be done on a large scale. The spirit of research will produce more useable results, in and out of the universities, than many haphazard investigations by incompetent persons. It is the unique function of the universities to instil this spirit of research and respect for sound research, not only into its faculties, teachers and students, but also into the leaders of business, industry and government.

## Atomic Energy

179. The discovery of atomic energy has opened a new era in the progress of mankind with incalculable potentialities. Recent developments have paved the way for its employment in peaceful uses. These developments are of special significance to a country in the

early stage of technological development. There is no reason why Pakistan should pass through all the technological stages which have been witnessed in advanced countries. We must take full advantage of all developments and adopt a vigorous and imaginative attitude. The application of radio-isotopes to medical and agricultural problems should be taken up at research stations in both Wings. A suitable research reactor should be installed as soon as possible. Eventually there should be two research reactors, one in West Pakistan and the other in East Pakistan. Effort must be directed towards education and training, growth of libraries, research and exploration for radioactive minerals and organisational development. Development will probably be limited by the availability of trained men and we must therefore utilise fully all opportunities that present themselves for this purpose.

The Government have set up an Atomic Energy Council consisting of a Governing Body and an Atomic Energy Commission. Its functions include the procurement, supply, manufacture and disposal of all radioactive substances, carrying out of surveys of radioactive materials, assessing the country's requirements and taking necessary steps for their fulfilment, and the planning and establishment of atomic energy and nuclear research institutes at suitable centres. A detailed programme is being prepared which will be considered for incorporation in the final draft of the Plan. We understand that progress is being accelerated in several ways. A training programme is in hand and several of our men have received training abroad. Exploration is underway for radioactive minerals. Necessary steps are being taken and a site chosen for the installation of the first research reactor. A library of more than 60,000 books and reports has been assembled. The good beginning thus made should be followed up with vigour so as to compensate for past delays.

## Social Science Research

180. Whereas physical and biological research applied to the country's resource and industrial development is receiving increased attention and support, research in the social sciences—economics, political science, sociology, cultural anthropology—has not been similarly recognised. Pakistan needs a council of social science research, just as it has a Council of Scientific and Industrial Research in the physical and biological sciences.

181. The need for social science research is great. The people and the government at all levels are making plans for social and economic progress. Great quantities of information must be collected and analysed to make such plans valid and realistic. Numerous illustrations of unanswered questions are available ; the size, composition, distribution and rate of growth of the population ; the economic status of families, villages, provinces and the nation ; the patterns of life and organisation of families and villages ; experiences in various forms of local government ; patterns of employment and vocational skill, etc. These needs are recognised by the establishment in recent years of such agencies as the Boards of Economic Enquiry in the former Punjab and former North West Frontier Province, the East Pakistan Statistical Bureau, the Research Advisory Board in the former Punjab and the Central Statistical Office.

182. The problem is not so much the recognition of the need for social science research as the method of meeting it. The number of persons in our country skilled in research methodology is very small. The courses in the colleges and universities in economics and political science, even at the postgraduate level, are generally weak and include practically no training in research. Courses in such fields as sociology and cultural anthropology are just now being considered. The professional organisations, although making a good beginning, are not active in the field of research. In short, our country lacks strong leadership in the field of social science research.

183. To remedy this deficiency it is proposed that the government charter a Council of Social Science Research to give leadership in the field by assisting and keeping abreast of research and research needs and bringing them to the attention of the universities and appropriate government departments ; by conducting seminars on research methods and otherwise increasing the number and quality of research workers, by advising on the framing of research projects ; and, above all, by giving encouragement and financial support to individuals who show competence or promise in the field. The Council should not undertake research itself, and it should not pass judgments upon research findings ; it should be a non-political body.

184. In general, the Council of Social Science Research should be organised by and be composed of a few first rate social scientists of the country at the invitation of the Inter-University Board. After it is organised and chartered, it should be an independent body responsible for its own membership and organisation. The Council might be managed by an executive committee and staffed by a small number of competent social scientists. The Council should be free to employ outstanding foreigners as staff members or consultants. The creation of this Council, with a small grant for operating purposes and a larger grant for development, would in itself stimulate the advance of social sciences in our country.

185. In as much as organised research on a large scale is new to us, we have the advantage of being able to set the standards high at the outset. The most certain method of developing and maintaining such standards is to give full freedom and support to those scientists whose devotion to and competence for research distinguish them from other men. Such scientists should be provided with adequate personnel assistance and funds for travel, and freedom from other duties, as well as with research facilities. This kind of recognition and encouragement, essential to genuinely productive research, should bring our scientists to the fore in world scholarship very soon, even though their number may be relatively small until a broader base can be built. But such scholars, with their students, will be the centres of research development and until they are found and supported, research will be insignificant or second rate. By avoiding the mistakes of too rapid expansion, by creating an environment for high standards of performance, and by finding, encouraging, and supporting men and women with the scientific spirit, the universities will perform their research function responsibly and serve the country best.

## College and University Teachers

186. The quality of higher education, deeply affected as it is by curriculum and facilities, depends in the last analysis upon the ability, competence and interest of teachers and students and their interaction upon one another. By and large, colleges and universities in the long run will bring together teachers and students, who other factors being favourable, have a deep interest in knowledge, intellectual pursuits, and ideals. But this process cannot be left entirely to chance. There is a dearth of properly qualified teachers in our colleges and universities, and the shortage will become more pronounced as development schemes are undertaken, unless constructive measures are taken to forestall it. Three kinds of measures are called for :

(*a*) To make the best use of the limited number of qualified persons now available.
(*b*) To provide for an increase in the supply of trained teachers.
(*c*) To increase the incentive for competent men and women to enter and remain in the field of college and university teaching and research.

187. The tremendous upsurge of scientific and industrial development is outstripping the growth in the supply of scientifically trained personnel all over the world. Such personnel is in great demand in scientific laboratories, government agencies, and industrial establishments as well as in colleges and universities : inter-agency and inter-institutional

competition for their services is keen. The long-term needs of government and industry cannot be met unless the higher education institutions can be staffed, and staffed well, because the quality of scientific personnel depends upon the excellence of college and university training.

188. In order to make the best use of existing scientific personnel and particularly for the purpose of assuring colleges and universities of competent staff, it is proposed that the Council of Scientific and Industrial Research and the Inter-University Board form a joint committee on scientific personnel, to which they should invite representatives of industry. The functions of this Committee will be to develop a scientific personnel roster, to encourage the use of such personnel up to their fullest capacities, to arrange for the coordination of offers for jobs made to persons whose names are on the list, and to assist the respective agencies to fill their vacancies. The committee should exercise care in limiting opportunities of free choice by the individuals, because they will be happiest and do their best work if they have an opportunity to select their own positions. The Committee can be of very constructive assistance by providing clearing house services to the agencies and institutions concerned and to scientifically trained personnel.

189. At the same time, however, it is necessary to take emergency steps to increase the number of qualified college and university teachers. At least for the period of the Plan, it will be desirable for a large number of junior teachers to take honours and advanced degrees at foreign universities. The Plan provides for sending 220 young teachers abroad, 100 from universities and their constitutent and affiliated colleges in East Pakistan and 120 from the universities and colleges of West Pakistan, for an average of two years each. The persons selected should have demonstrated as students, teachers and research workers, their capability of benefiting from such advanced studies. Each of the recipients of these awards should bind himself to teach for at least five years upon his return, and he should be chosen because of the prospect that higher education will be his life work. In no circumstances should he be released from his undertaking to serve in a teaching institution for a period of five years, but he must be guaranteed reasonable conditions of service.

190. This programme of training abroad should not be continued any longer than is absolutely necessary. It is clearly more economical and more efficient to bring a small number of foreign professors to Pakistan for short periods of from 2 to 5 years than it is to send a large number of our men and women abroad. The professors brought from abroad would be able to guide the education of a comparatively large number of colleges and university teachers. The current inter-university arrangements among certain American and Pakistani institutions have great merit for this reason.

191. The several overseas training programmes now being conducted are of both direct and indirect benefit to colleges and universities. The Central Government, through its overseas training schemes administered by the Ministry of Education, has been awarding about 25 scholarships a year since 1950. Foreign governments and philanthropic organisations have provided scholarships and fellowships under a variety of cultural exchange and technical assistance programmes. The Ministry of Economic Affairs has participated actively in the selection of the recipients of these latter awards.

192. These several programmes have undoubtedly been of great value, both individually and collectively. It is believed that their value could be greatly enhanced, however, if the following safeguards were provided :

(*a*) Each person selected for an award should be sponsored by an agency, governmental, educational or private, which will guarantee the use of his talents for a minimum period of five years after his return ;

(*b*) Each person selected should give assurance of remaining with his sponsoring agency for the prescribed period upon his return ;

(*c*) Persons should be selected in fields which are in the greatest need of strengthening ;

(*d*) Persons should be selected only on the basis of merit and their academic and research records, rejections being made only where a person, on interview, is found unsuitable from any other point of view ;

(*e*) The awards should be adequate to pay living and travel and tuition expenses ; and

(*f*) All plans should be coordinated by an overseas scholarship committee composed of educational, governmental and business leaders of known integrity.

193. These special measures for increasing the supply and stability of teaching personnel, however, are only supplementary to the basic method of attracting and retaining outstanding staffs in colleges and universities. That method is to increase the attractiveness of teaching. Although salary levels must be sufficient to permit the maintenance of a decent and secure standard of living, the real attractions of teaching are the satisfactions which come from seeing students making progress in higher studies and succeeding in the world of scholarship, government and business. There are other satisfactions which come from study, research, and contribution to knowledge. Colleges and universities are not fully successful in providing these incentives at present because of the rigidity of prescribed syllabi, texts, and student measurement methods which are too often artificial and inhibit the initiative and expression of the teacher. Laboratories and libraries do not provide adequate opportunities for research and study. By making the procedural changes suggested in other sections of this report, and by raising the standards of instruction and research, the institutions of higher education can increase the attractions of teaching substantially. Emphasis on the need of sacrifice by the teachers in the course of their noble calling will yield results only if other conditions are made favourable for them.

### Talent Scheme for Students

194. The selection of students for higher education is a neglected topic. Student selection has two aspects ; guidance to those students who, although financially able to carry on, clearly do not satisfy the standards of higher studies which have been discussed in the section on examinations ; and the selection of those students who are outstanding but would not be able to reach their highest level and make their fullest contribution without full or some financial assistance. Suggestions for the encouragement of talent have been made by the Inter-University Board and by the Council of Scientific and Industrial Research.

195. We would emphasise that, since talent exists at every level of society, facilities for education should be provided in such a manner that the poorer sections of the population, as far as possible, are afforded equal opportunities. Because the country needs promising young people and because a beginning should be made in democratising higher education, the Plan provides means of further education to those whose career in secondary schools has been outstanding but whose financial means do not permit them to continue their education. The provision will cover an average cost of Rs. 1,200 per year (excluding tuition fees, which will be waived) for 600 boys and girls each year for 4 years. Provision is made for the continued education of about 25 per cent, for some of them in professional colleges such as medicine and engineering. The selection of boys and girls under this scheme should be made annually. Provision has also been made with a similar purpose for awarding overseas scholarships to 25 outstanding boys and girls to continue their studies in foreign

universities. This would enable brilliant boys and girls with insufficient means to carry their education and training to the fullest limits of their promise and talent. If this scheme succeeds and when the resources permit it should be expanded, first to include pupils in matriculation classes and subsequently to increase the numbers. Among other things it should have a profound effect on the standard of work and discipline in the colleges and universities and relatively to the benefits the cost would be small.

196. We recognise that this proposal is very modest and will fail to meet the needs fully. The costs of higher education have increased to such an extent that it is now scarcely within the reach of the less well-to-do sections of the community, especially where large families are concerned. Limited resources do not permit us at present to make any extensive proposals for reducing the costs, though we are clear that this must be our ultimate goal. A continuation of the present situation would not only result in the loss of potential talent to the nation, but involve a negation of the principle of equal opportunity to all in the pursuit of knowledge. In recognition of the ultimate objective we are including this scheme as a token, to make a modest beginning towards what we visualise as a normal system, in which every promising boy or girl, whatever the financial means of his parents, will be provided with opportunities to the fullest extent of his talent and aptitude. The selection of students for talent awards must be made with great care so that no question can be raised with respect to either financial need or talent. Candidates should submit evidence of financial needs, but in regard to talent the recognition of the marks obtained in the examinations as the standard of measurement is likely to involve the least risk of injustice.

197. By giving special attention to the selection of students and teaching personnel the colleges and universities can quickly raise the levels of higher education throughout the country. The result will be reflected in the course of time in better educated citizens and leaders and in better trained scientists and professional men. The obligation of higher education to stress quality rather than quantity can in this way be fulfilled more readily.

## IX. PROFESSIONAL EDUCATION

198. The country's social and economic progress depends heavily upon its professional groups. The development Plan requires the skilled direction and leadership of professionally competent persons in such fields as engineering, medicine, agriculture, education, social work and industrial and government management.

199. In countries which have made spectacular progress in recent history, scientists and technical men are rated very high. Despite their importance, the professions are not given adequate recognition in the country and the environment is not as favourable to their full growth. A large number of graduates of the professional colleges are employed in government posts, but because of their status their technical and professional judgements are frequently given too little attention. In most cases, sufficient authority is not delegated to professional personnel in government to prepare and execute programmes. These conditions are a legacy from the times when policy formulation and programme implementation had few scientific and professional implications. They must be improved if we are to rise above a very low level of professional accomplishment.

200. This system for the employment and utilisation of professional personnel is colonial in its origin and purpose. Professional work hardly ever rose higher than the technical level, since the colonial system required only technicians, that is, persons who could perform assigned tasks of a mechanical nature under foreign professional supervision:

Vestiges of this system persists today in the economic and social status of the professional. The first step in correcting this situation is to ameliorate the professional's status so as to widen his opportunity of contributing to his own growth and the growth of the community.

201. The second step is to make the professional colleges truly professional institutions rather than high-grade technical schools, which too many of them now tend to be. As stated in an earlier section the professional colleges should be separated from government departments and made constituent of the universities as a part of one integrated educational organisation.

202. The third step is to develop syllabi and courses of study for the colleges designed to give the best possible professional education and not merely to prepare for particular government jobs. The colleges should take full advantage of their association with universities to broaden and deepen professional education with contributions from the basic physical sciences and the social sciences. They should develop programmes of fundamental research. Their teachers should be scholars in their professions and not merely persons on assigned duty from departmental posts. An independent point of view about professional development and the contribution of the professions to national life and well-being will then be free to emerge. Graduates of professional colleges like these will be able to serve their country well.

203. In addition to being established as genuine professional colleges, these institutions should be encouraged to raise their standards of instruction. During the Plan period we should seek to improve the existing facilities and courses rather than to expand the number of these colleges or the length of their courses except where the latter is absolutely necessary. Almost uniformly these institutions are deficient in up-to-date laboratory equipment and libraries. For this reason, professional instruction is too frequently theoretical, whereas the essence of professional education is in its practical application. A larger number of teachers is needed to reduce the size of the classes, and such teachers should have advanced degrees. Very prompt attention should be given to these deficiencies in professional education.

204. The changes outlined above will very quickly put the professional colleges in a position to develop into first class institutions. They already have the potentiality of doing so, owing largely to the competence of the teachers ; a substantial majority of whom have had post-graduate instruction in the best professional institutions in other countries. The practice of sending promising young teachers to foreign universities for further education should be continued and extended. In one respect, however, teaching careers in professional colleges are hampered : in many cases members of the staff are subject to transfer to other government posts and are, in fact, often dependent for higher salaries and promotions upon such transfers. Executive and administrative posts, unlike teaching posts fall in the normal line of promotions and offer temptations in the form of social position, power of patronage and pecuniary rewards. The disadvantages of such interchange of personnel seriously outweigh its advantages. Larger numbers of professional personnel should be encouraged to make teaching and research a life work by the provision of adequate salaries, status and opportunities for promotion in their own fields.

## The Professions

205. The term profession is applied in common parlance, to agriculture, business and public administration, education, engineering, architecture, law, and medicine. A recent addition is social welfare. Some of these professions have their own educational institutions with specialised literature, equipment, skills and codes. Professional education

in agriculture, medicine and social welfare is discussed in the relevant chapters of this Report ; however, the proposals are summarised here in order to give a picture of professional education as a whole. Engineering, business and public administration are discussed in this section because of their importance to development in several fields, including government service, industry, agriculture, power, irrigation, transport, and communications.

**Agriculture**

206. There are now three colleges of agriculture and two colleges of animal husbandry ; the Agricultural College and Research Institute at Dacca, the Punjab Agriculture College at Lyallpur, the Agriculture College and Research Institute of Sind, the Animal Husbandry College at Dacca, and the Animal Husbandry College at Lahore. In addition, Islamia College, Peshawar, offers a course in agriculture of the same length and approximately the same content as the other agricultural colleges in West Pakistan. In East Pakistan, the duration of the degree course in agriculture is three years after Intermediate Science, whereas in West Pakistan students are admitted after matriculation to a four year course for a B.Sc. degree in agriculture.

207. In West Pakistan, the animal husbandry training course is of four years after matriculation. Successful students are awarded the degree of B.V.Sc. In East Pakistan, there are two courses in animal husbandry (*a*) a diploma course of three years after matriculation and (*b*) a degree course of five years after matriculation. The Pakistan Animal Husbandry and Research Institute at Peshawar and its sub-station at Comilla are expected to provide post-graduate teaching and training in animal husbandry. There is a Forest College and Research Institute at Abbottabad (now being shifted to Peshawar). This College provides training to superior officers and rangers of the Forest Department. The officers' training course is of two years' duration, with the basic qualification for admission of B.A. or B.Sc. The Rangers' course is of one year's duration open to students who have passed the Intermediate Examination.

208. The 1950 report of the Agricultural and Veterinary Education Committee of the Council of Technical Education which reviewed the country's situation and needs and made a series of recommendations emphasising the necessity of improving the standards of under-graduate teaching and developing training and research, made the following significant statement : " No teaching institute worthy of the name should exist where research cannot be conducted and it is always of great advantage that every research institute undertakes the training of post-graduate students."

209. The implementation of plans for agricultural re-adjustment and development will require a very substantial improvement in agricultural education at the professional level. The Village AID programme, through which knowledge and leadership in agriculture will reach the villages, will require specialists in farm management, co-operatives and marketing, plant protection, animal husbandry, horticulture and other fields, in each of the development areas and at the tehsil and provincial levels. The quality of the service these specialists can render will depend upon the excellence of their education and the validity and scope of the research done on our agricultural problems and opportunities. It is proposed that two strong centres providing courses for bachelor's degree and post-graduate education and research be developed—at Lyallpur in West Pakistan and at Dacca in East Pakistan. Each should be responsible for research and instruction leading to a doctorate and each should be staffed with scientists of the highest calibre.

210. Although the development of the two post-graduate centres should receive emphasis during the Plan period, the two other agricultural colleges must also have additional support. A new agricultural college in Peshawar University is being built to succeed the course at Islamia College. Ultimately it is expected to combine agriculture and animal husbandry, and also to combine teaching, research and rural extension services. In addition, during the Plan period, substantial advances are expected in research and instruction in forestry and fisheries.

### Medicine

211. Doctors are now trained in six medical colleges and seven medical schools. The medical colleges give a five-year course after the intermediate examination leading to the degree of Bachelor in Medicine and Bachelor in Surgery. The medical schools give a four-year course after matriculation leading to the Licentiate Medical Practitioner or Licentiate of the Medical or Licentiate of State Medical Faculty. These colleges and schools, between them, are now producing 500 doctors a year and the number will increase to 600 per year during the Plan period. At this rate, and taking into account the needs of replacement and population increase, there will be a ratio of doctors to population of 1 : 8000 in 1960 and 1 : 6000 in 1965.

212. It was the conclusion of the All-Pakistan Health Conference of 1951 that no new medical colleges or schools should be started at this time, but that the existing colleges should be improved and that the schools should be strengthened preparatory to being upgraded over a period of years, to full-grade medical colleges. This position is reflected in the development Plan. Provision is made for improving and strengthening each college and school and upgrading one medical school to a medical college. The Plan provides, in addition, for the establishment of a department of tropical medicine in East Pakistan, for an institute of basic medical sciences in West Pakistan and for advanced training for doctors, both in the country and abroad. To aid the colleges in keeping abreast of advances in medicine and surgery and improve standards of instruction, arrangements are being made to import additional modern teaching equipment and supplies and to enlarge the medical libraries.

### Social Welfare

213. Social welfare has for its purpose the relief of those tensions in the population which result in social diseases and maladjustments, such as crime, pauperism and physical and mental ill-health. The problem is particularly acute when a country is undergoing an economic and social revolution as in Pakistan today. Adequately trained social workers are almost non-existent, and before the country can develop and administer the kind of programme it needs, provision must be made to produce them.

214. A beginning has been made in the training of social workers during the past two years. Special courses of six to nine months' duration were conducted by the government with the assistance of the United Nations for selected persons in Karachi, Lahore, and Dacca. The University of the Punjab followed this start with a two-year post-graduate course leading to a diploma. It is proposed that this course be strengthened and expanded to 40 students per class and that similar courses be started in the universities of Dacca and Peshawar. Concurrently, the universities must begin to undertake research in social welfare and organise short courses for volunteer workers. If these schemes are undertaken promptly and if they are well-executed, our country will have a source of personnel and research as well as volunteer organisations upon which to build a constructive programme of social welfare.

## Business and Public Administration

215. The country's declared goals require the development of two professions to which little attention has been paid in the past—business and public administration. The expansion of business and industry, and the change in the principal emphasis of government from law enforcement and revenue administration to development and welfare, are likely to suffer less from want of money or material resources, than from want of men and organisation. The Commercial Education Committee, appointed by the Ministry of Commerce and Education which reported in 1952, called attention to this gap and found that the present training was too theoretical and of a low standard. Since that time there have been some encouraging developments, but much remains to be done.

216. At Independence there were three colleges teaching Commerce to the degrees standard : the Hailey College of Commerce, Lahore ; the Commercial College, Chittagong ; and the College of Commerce, Karachi. All these colleges now teach to the M.Com. level, but from 1955 the M.Com. classes of the College of Commerce, Karachi, have been taken over by the University of Karachi. Commercial colleges have confined their attention to the teaching of commerce subjects only. Public Administration has come to be as a subject of study very recently. Two institutions of Public and Business Administration have started functioning in the Universities of Dacca and Karachi, which are taking the lead in developing research and teaching in Business and also Public Administration. These are post-graduate institutions and will award a Master's degree in Commerce as well as in Public Administration. It is proposed that the Hailey College of Commerce, Lahore, and the Commercial College at Chittagong be given additional support to enable them to become first-rate colleges where degree courses in Commerce and Public Administration will be offered. The College at Chittagong needs a new building, new equipment and a new location. Additional attention should be given to the quality of instruction and to inter-relationship with business and Government.

217. Experience of these educational innovations during the development period will provide a basis for the extension of education and research to administration. Education and research should not remain confined to colleges and universities. They should also be reflected in changes in public service examination and in programmes of in-service training in public and private agencies. The techniques and procedures of administration will play a major role in the success of all development programmes and the introduction of teaching and research in this subject is, therefore, of special significance and needs to be expanded rapidly. A comparative study of administrative techniques and their evaluation should prove useful and we would strongly advise the organisation of special short term courses for public servants to broaden their outlook and to give them a knowledge of principles underlying the methods they are following.

## Engineering

218. Engineers will play a key role in construction, industry and water and power development which form the major portion of the Plan. The Plan period should be used to up-grade, improve and strengthen the existing engineering colleges.

219. There are four engineering colleges—at Karachi, Lahore, Dacca and Peshawar. Among them they produce about 300 graduate engineers a year. Every college offers a basic course in civil, mechanical and electrical engineering. In addition, the college at Lahore offers courses in mining and chemical engineering and the college at Dacca offers courses in chemical and metallurgical engineering. The courses are of varying lengths—from three to four years of academic work and from one to two years of approved engineering practice. The development Plan requires about twice as many engineers as are

now being trained. It also demands a more highly professional engineer than is generally available from the colleges at present. In addition to increasing the number of colleges and the number of seats in existing colleges, the Plan period should be used to increase the quality of the training offered.

220. The greatest weakness of the engineering college is a curriculum which is based upon the specific job needs of the government departments. This practice neither encourages the development of high professional, as distinct from technical standards, nor takes into account the rapidly increasing requirements of industry. Another result is that each college also offers courses for students at the diploma or licentiate level, and even for apprentices and overseers. Desirable as this practice may have been at one time it is now an antiquated practice and detracts from the accomplishment of the engineering colleges' primary purpose—to train engineers. As soon as the system of polytechnic and monotechnic institutions is developed, the colleges should be relieved of these burdens, freeing their space and their faculty for full-time education at the professional level.

221. The Technical Education Committee made three recommendations which should be put into effect as promptly as possible :

(*a*) The length and content of the basic courses—in civil, mechanical and electrical engineering—should be standardized so as to put graduates on the same footing and facilitate transfer. The Committee suggested a three year course plus one year of approved practical training. Three years is the minimum, however, and the collges might be well advised to evolve a standard four year course. The year of "approved engineering practice satisfactory to the principal" is of doubtful value unless it is carefully and systematically supervised and arranged at periods interspersed during the students' academic work.

(*b*) The colleges should add other specialised engineering courses only if there are major employment needs and other colleges do not offer such courses. Such specialisation among the colleges will obviate unnecessary duplication. It will also encourage the colleges to adhere to the basic fields of engineering and avoid narrow specialisation. It will be many years before the country needs any significant numbers of specialists. Even then it may be found that industry prefers soundly grounded all-round engineers to narrowly trained specialists.

(*c*) Post-graduate courses of two years leading to the master's degree should be inaugurated at the universities. This recommendation is particularly pertinent because it is at this level that worthwhile specialization may be undertaken. A good illustration is the field of hydraulic engineering, which is of great importance in the wise development of the great river valleys. In addition, it will be largely through post-graduate instruction and research that the colleges will enrich and up-grade their undergraduate curricula.

222. The engineering colleges are in great need of up-to-date laboratory equipment and text books. Many modern engineering tools and machines—such as electronic equipment are not now provided and many of the text books are out-dated. A large expenditure is contemplated in the development Plan for the modernization of equipment and books. Such modernization must be accompanied, however, by teaching which stresses the applied as well as the theoretical side of engineering—a side not sufficiently emphasised at present. It is important that our engineers become practising engineers with a pride in professional performance, and not merely "arm-chair engineers." This task of changing the attitudes of the engineer rests with the teachers. Although most teachers for some years will need to be trained in foreign countries, they should be selected as far as possible from among young men who have demonstrated their promise as practising engineers. Their teaching sections should be small in size so as to permit individual instruction and guidance.

223. Four specific additions need to be made to the programme of engineering colleges to meet the new needs of the development Plan :

(*a*) Courses in mechanical engineering should provide more instruction and practice in tool design, machine design and manufacturing processes.

(*b*) A basic course in chemical engineering should be introduced in each college which does not already have one since together with mechanical engineering, it constitutes the best engineering education for industrial development. Further specialisation should be avoided.

(*c*) As professional institutions, the engineering colleges should incorporate instruction in social sciences in their curricula. The professional engineer must not only know the application of physical sciences in the solution of physical problems, he must also be able to see those solutions in terms of national and social well-being. And he must understand human motivation and relations as a basis for industrial management. To put it in another way, engineers must not only conceive, but also execute engineering solutions in a social environment involving the co-operation and participation of many other people. The fully professional engineer, therefore, should be educated in the social as well as the physical sciences.

(*d*) Finally, although they will not add to the number of engineers during the Plan period, two new engineering colleges have been proposed for construction. In addition, the N.E.D. College at Karachi is in urgent need of new buildings at a new location and new equipment, provision of which will be undertaken by the University of Karachi in the later years of the Plan period. The six engineering colleges will be capable of training 650 engineers a year by 1960, a number which at present appears to be sufficient for meeting the present shortage of engineers needed for industrial and resource development. The experience of advanced countries like the U.K. shows that requirements are likely to be always ahead of supplies. We must therefore implement the immediate programme with vigour and keep the situation constantly under review to seize any opportunity that may present itself to increase the programme. East Pakistan seems to us to be in special need of increasing her engineering educational facilities and if sound and feasible schemes are prepared it would be possible to find resources to finance them.

## X

## SPECIAL ASPECTS OF EDUCATION

### Emphasis on Basic Educational Structure

224. We have attempted to outline the base of the educational system envisaged at the primary, secondary and higher levels, and to indicate the steps needed to erect this structure within the limits of available resources in money, personnel, and equipment. The programme presented is large but no more than a minimum in relation to our needs. It povides for very substantial growth and if implemented it will be a solid foundation on which to build greater advances, in future. It is necessary in the immediate years ahead to give priority to the essentials of the educational system and to defer until future years the refinements which are beyond reach for the present.

225. There are many special and worthwhile objectives which can be reached only through education, for instance, the liquidation of illiteracy and poor health practices, and the enrichment of the cultural life of the nation through the provision of libraries, art galleries, museums and music centres. To attempt to achieve these objectives on any large scale without improving the basic educational structure would be to put the cart before the horse. For this reason, the develoment Plan puts emphasis upon the basic elements of the educational system and upon those parts which will contribute to the increasing economic strength of the country. As this strength grows, and as the educational system matures, new objectives and activities will be added and developed. Many of the special problems which exist and which call for the formulation of special programmes are a result of the absence of a sound educational system. As that system is progressively established, these problems will become less severe.

226. An important policy question arises in connection with the relationship of special programmes with the central educational programmes, namely, how many purposes the educational system should be expected to serve. Because of the existence of widespread administrative and supervisory personnel, buildings and teachers in the educational organisation there is a constant temptation to use these facilities to accomplish non-educational purposes, which, no matter how worthy, impose added burdens on already overworked teachers, detract from the central purpose of the system, and add greatly to the cost in terms of benefits derived. Illustrations may be found in suggestions to use the schools to train children for specific occupations, to add special courses to the curriculum and to administer public health programmes. As we face the tremendous problems of providing free primary education to all children and of progressively increasing the number of secondary schools and colleges, it is necessary to reserve our resources for the effective accomplishment of the central purposes of education.

227. In the long run, school programmes may be enriched at all levels by making arrangements for such services as medical examinations, mid-day meals, gymnasiums, recreation facilities, youth clubs, etc. Each of these services would undoubtedly produce worthwhile national results. Special provision eventually needs also to be made for those children who are physically or mentally handicapped. However, desirable these services or activities may be, none of them is immediately essential to the basic programme of education. To attempt them nationally at the present time would require great expenditure, and diversion of trained personnel which would inevitably slow down and weaken the more urgent process of establishing the basic school system.

228. This does not mean that no services of this kind should be permitted. On the contrary, headmasters and teachers should be encouraged to arrange extra-curricular programmes for their pupils including clubs and recreation. Pupils and their parents should be urged to use the facilities of community hospitals, clinics and dispensaries, not only for the treatment of existing ailments but also for periodic examinations. These activities should be undertaken by the schools as a matter of course as indicated in earlier sections of this report. More elaborate programmes requiring special buildings, equipment and staff should, however, be deferred during the Plan period except as undertaken by private philanthropy or local bodies. In the meantime, a few schemes providing for medical examination, mid-day meals, youth hostels and recreation programmes have been approved on an experimental and demonstration basis.

## Adult Illiteracy

229. Consciousness of the high percentage of illiteracy and tremendous barriers it places in the way of economic, cultural and political progress, has prompted many efforts towards adult literacy programmes. Almost every Province has, in the past, attempted to establish and maintain adult schools or literacy centres. For the most part

these efforts have not proved successful. Reliance upon school teachers and voluntary workers, without special training, was unrealistic. Inadequate provision was made for making literature available, which was rather unimaginative, since without use, people are apt to forget their quickly learned skills. Merely teaching people to read and write in a short course, naturally proved an abortive effort. The popularity of the courses has, however, demonstrated the readiness of large numbers of adults to learn how to read and write.

230. The 1952 report of the UNESCO Fundamental Education Mission to Pakistan defined the problem correctly when it pointed out that adult education must be related to the problems people face in their own communities, and particularly to their economic problems. It stated the purpose of fundamental education to be the minimum knowledge necessary for the people :

(*a*) to acquire the skills of thinking and communicating, through the knowledge of speaking, reading, writing and calculation ;

(*b*) to improve health conditions through personal and community hygiene ;

(*c*) to organise economic life, chiefly on co-operative lines, for a more efficient use of natural resources, and the development of more productive and useful cottage crafts ; and

(*d*) to lead better and fuller integrated lives, in an ordered and disciplined way, as responsible citizens of their country.

231. The Village AID programme is the vehicle by which these goals of fundamental education can be reached in our rural areas. This programme, described elsewhere, is designed to encourage villagers to undertake projects in agriculture, health, education, etc., with assistance from the Provinces and the Centre through a co-ordinated administration. One of the items of this programme will be literacy education directly related to the projects the villagers decide to undertake. Trained adult teachers will be employed, and specially prepared materials will be made available. Plans are being made to provide circulating libraries of primers and bulletins relating to the development of village life. The schools are proposed to be the nuclei for community centres for the conduct of village-wide activities. In this way, literacy education will not remain an isolated activity, but will be woven into the fabric of village life.

232. A similar programme is proposed to be taken up under social welfare through urban community development projects and therefore no national scheme for fundamental education in urban areas has been prepared. It is proposed that, as programmes of social welfare evolve in the several cities, they may be broadened to include literacy education. Industrial employers can contribute to this movement and concurrently improve the efficiency and stability of their own labour force by supporting literacy classes for their employees. The concentration of schools and the more literate population in urban areas make the problem somewhat less severe than it is in rural areas, where emphasis on fundamental education is being placed during the Plan period.

## Cultural Activities

233. We look forward to the time when the country's culture will be reflected in and advanced by numerous museums, art galleries, national monuments, libraries and music centres. Recognising that government funds must for the time being be reserved for the more basic and essential requirements, of the economy and society, other sources of supports to these expressions of the national culture must be encouraged. The colleges and universities are growing centres of cultural influence. It is proposed that they should

widen their influence by opening their libraries and exhibits to the general public and by organising cultural activities for the benefit of the surrounding community. Interest displayed in cultural activities by colleges and universities will enhance their prestige and standing among the general public and help them achieve the new level of leadership which is expected of them.

234. In addition to making fuller use of existing resources, private interests should be systematically encouraged to promote and help cultural projects of all kinds. Endowments to support concerts, museums, galleries, and libraries should be established. Particularly, in the urban areas organisations supported by private subscription could undertake a wide range of projects in art and music and literature. These are traditional methods of cultural promotion all over the world and might well be emulated in this country. It is proposed that the Ministry of Education establish a committee on cultural affairs to foster intelligent interest in and patronage for this growing side of our national life. Concurrently however, a small fund is provided to give continued support to libraries and other cultural centres, which may serve as a beginning to a much broader programme along the lines indicated above.

## Executing the Plan for Education

235. One of the means by which a nation can be judged is its system of education. The nature of that system reveals the character of the people and the level of their economic, political and cultural ideals and aspirations. The way in which the system evolves shows the degree of vitality with which the people and the nation approach their destiny. The plans here presented for education, based upon the thinking of our educational leadership through the years and upon schemes presented by the several provinces, provide guidelines for the achievement of a system of education consonant with the goals before the country.

236. Whether or not these plans are carried out, however, will depend upon the execution of administrative phases of the plans, such as the training of teachers and other key personnel and the modernisation of college and school organisation, and upon the educational leadership. It is believed that the proposals for education presented in this chapter can be carried out financially. Also the plans for education are correlated so that, for example, the increase in the number of primary schools is related to the capacity of teacher training institutions.

237. The results contemplated for education in this Plan can be achieved, in other words, if adequate provision is made for the exercise of responsible initiative by the educational leadership. The recommendations made in earlier sections of this chapter indicate ways of strengthening the provincial directorates of education and universities. It remains to define and clarify the role of the Centre. Inasmuch as education is the responsibility of the Provinces, the primary functions of the Centre are :

(*a*) To collect, analyse, publish and disseminate statistical informations about the state, progress and needs of education in the country as a whole ;

(*b*) To initiate the appointment of and provide administrative services to such Central Committees as the Advisory Committee on Education, the Inter-University Board, the Univresity Grants Commission and the National Training Board ;

(*c*) To promote the planning of education and to extend support towards the fulfilment of agreed plans ;

(*d*) To assist in relating the educational plans to the growing needs of social economic development throughout the country ;

(*e*) To provide leadership and coordination and a national basis and in particular to arrange for conferences of educational and lay leaders to consider the solutions to major educational problems with the purpose of reaching consensus and giving support to the application of agreed-solutions ; and

(*f*) To maintain relationships with educational agencies in the United Nations and other countries and administer co-operative and exchange programmes involving these agencies.

238. To sum up, the Centre should exercise informational, advisory, coordinating and supportive role of leadership in education. The present Ministry of Education is understaffed for this work and over-burdened with the direct management of educational affairs in Karachi. As a consequence, very little statistical information is collected and published, and advisory functions are hardly attempted for lack of time and staff. Moreover, there is often unfortunate delay in judging schemes proposed by the Provinces and in assembling data for the Ministry of Finance as a basis for determining the size and nature of grants-in-aid. It is recommended that the functions of the Ministry be clarified, as here proposed, and that its staff and facilities be strengthened so that it may exercise its appropriate role of educational planning and leadership.

**Recapitulation**

239. After making a careful survey of the existing conditions of education at all levels, studying the various reports of the Central Advisory Board for Education, the Inter-University Board, other authorities and various committees and examining the schemes which have been received from the Provinces, we have come to the conclusion, that, first and foremost, the country should consolidate, that is, fill the gaps and make up the deficiencies that exist in the educational structure in respect of personnel, equipment, and buildings, and that, secondly, must expand the educational system as far as the limited resources permit. In the programme for expansion we have kept in view the needs of the plans of economic and social development and the prime necessity of meeting those requirements which will make the system dynamic and progressive.

240. In the first category—filling the gaps—we have made provision for the correction of such weaknesses as inadequate instruction in science and technical subjects, insufficient arrangements for girls' education, and unequal distribution of schools in rural areas. Recognising the need for better staffing and leadership in education at all levels, we have emphasised the training of teachers and educational research. Being painfully aware of artificial barriers to educational progress as reflected in faulty school, college, and university organisation and an out-moded examination system, we have proposed ways of overcoming them.

241. In the second category—the expansion of the education system—we have been concerned more with improving the quality and geographical distribution of schools and institutions than with their multiplication, except where necessary to meet basic needs, as for example, in the case of teacher training institutions and polytechnics. This concern is based upon the conclusion that the Plan period should be a time for re-organising and re-orienting the system of education, after which expansion can come with more confidence that the system will meet our needs. Hence we have urged the improvement of university research and the renovation of the curricula of secondary and primary schools. We have advocated improvement and consolidation at this stage rather than expansion so that in later periods we may be able to expand rapidly without any misgivings about the results to be gained. In the long run, the effectiveness and vigour of education will depend mostly on its quality; hence our insistence upon high standards in schools, colleges and universities.

## XI

# PUBLIC EXPENDITURE ON EDUCATION AND TRAINING, 1955—60

| | (Million Rupees) |
|---|---|
| Primary Education | 108 |
| Secondary Education | 155 |
| Teacher Training | 35 |
| Colleges, including Talent Scheme | 82 |
| Universities, including Overseas Scholarships | 93 |
| Technical Education | 52 |
| Council of Scientific and Industrial Research, Council of Social Science Research, Central Archives and Record Office and miscellaneous | 56 |
| Total | 581 |

# CHAPTER 27

# LABOUR AND EMPLOYMENT

## INTRODUCTORY

1. The problems of labour have increased in importance with the progress of industrialisation and the almost revolutionary changes in the last quarter of a century in the meaning and scope of social responsibility towards the working classes. An industrial economy needs a complex and delicately balanced technical and social structure, and labour constitutes one of the key elements on which its productivity and stability depend. Industrial peace, which is essential for the efficient functioning of the economy, needs an enlightened outlook on the part of the employers as well as the employees with a full recognition of their respective rights and obligations. To enable labour to develop a responsible attitude, it must be assured of reasonable treatment with a stake and status in the social order. It must have a share in the increased national income, and its living conditions should improve as industrial productivity improves and prosperity grows.

2. The same is true generally of agricultural labour, but with some notable differences. The general experience is that wages and living conditions in agriculture take a longer time to respond to the growth in productivity and prosperity. Agricultural workers are dispersed about the country and less able to organise themselves in trade unions than urban industrial workers, and welfare programmes for rural workers are not easily administered. Disparity in circumstances creates differences which frustrate social justice.

3. In order to execute the development programme, the country requires hard and unstinted work from people in every type of employment and a larger number of skilled persons. To achieve these objectives, the workers must have incentives and opportunities for training and bettering themselves, fair returns for their labour and a voice in decisions about their wages and working conditions.

4. The main purpose of the development programme is to lay the basis for a raising standard of living for people in every walk of life. This means that workers must receive an equitable share in the fruits of increasing production and economic development. We have no place for development based on exploiting the labour of the many for the benefit of the few. In the words of the first Prime Minister at a convocation of the Punjab University, in December 1948, " Pakistan came into existence because we wanted to create a society which is based on justice, equality and brotherhood of man : in other words, a society which has no inner conflict and where a man gets just reward for his toil and where there are no parasites existing on the labour of others, unacceptable both in the eyes of God and man ". (Summary of the proceedings of the First Pakistan Labour Conference, Labour Division, Government of Pakistan). But the clear and objective reports made in 1953 and 1955 by the Survey Missions of the International Labour Organisation show how the workers' enjoyment of the fruits of freedom is checked by the prevalence of poverty, malnutrition, and insanitary and over-crowded working and living conditions. Industrial and agricultural development does not mean only the erection of new factories and the introduction of new farming methods : it means also the projection of the struggle for independence into another sphere. Political independence, unless accompanied by a substantial measure of economic advancement, cannot overcome the problems of under-employment and raise the standard of living of our people.

5. Industrialisation in Pakistan need not be accompanied by the social upheavals, misery and frustration which accompanied the Industrial Revolution in the West. The industrialists are aware of the immense care and detailed planning which must precede the establishment of new industries. They take great pains to avoid the mistakes of others and to ensure that the latest and the best machines and equipment are installed. Similar care and forethought are necessary and must be devoted to understanding the problems

of the workers who will use those machines. Additional incentives for co-operation in the solution of mutually important problems of adjustment have to be provided. Just as the importers of capital goods ensure that the latest products of technology are brought into the country, it is important to ensure that the minds of the various parties to production are attuned to the best of progressive ideas concerning human relationships in industry. The old ' master and servant ' concept has to be discarded, and management must rid its mind of any inherited prejudices. Labour has to be accorded a position of equality which is in keeping with the present concept of the dignity of the individual. In this country, where workers are mostly illiterate and the trade union movement still in its infancy, the primary responsibility for establishing a good relationship with labour lies with the employers and the educated leaders of the workers. Their attitude and actions now will determine the attitude and actions of organised labour in the years ahead.

6. The State must foster conditions in which these principles can be applied : it must help to equalise the bargaining powers of workers and employers so that there can be effective voluntary negotiation and collective bargaining. The needs of the workers must be met in greater opportunities of employment, adequate wages and safer work places, better houses with water supply, light and drainage, and increased educational, cultural and recreational facilities. The workers' pay should be adequate to meet essential needs of the family with a margin for the enjoyment of leisure and protection against misfortune, sickness and old age. The efficiency and productivity of the worker are intimately linked with better standards of living. The workers and their leaders must realise their responsibility and their roles in the national effort : they must contribute to improve productivity if higher wages are to be paid, and for this the importance of training at all levels cannot be over-emphasised.

7. The problems of labour have been growing in scope and complexity all over the world. Many demands have been made in the past to organise world labour movements, and some of the organisations that have come into being have increasing influence on labour policies and programmes. On the inter-governmental level the International Labour Organisation has been the most effective and active body in this field. Many provisions of international conventions and recommendations adopted by the I.L.O. have been incorporated in the labour code of our country. Tripartite delegations representing the government, employers and workers are sent abroad to participate in conferences held under I.L.O. auspices, discussing matters of common interest with their opposite numbers from other countries and keeping abreast of international developments in this field. The I.L.O. has also been giving a considerable amount of technical assistance in the forms of expert advice and training fellowships. Through such international collaboration the country has obtained a series of reports, which provide an excellent basis for future action. The I.L.O. has also helped to start similar tripartite organisations on the national and provincial level. The Pakistan Tripartite Labour Conference, the Standing Labour Committee and similar organisations in East Pakistan and the former Punjab have been helping to develop the habit of sitting round the table and discussing differences in a spirit of co-operation and goodwill. Tripartite collaboration has a national importance : if the principle is established in some industries it will spread to others. The growth of co-operation between labour and management, and of both with public authorities, will strengthen the fabric of society as a whole. The growth of active, vital industrial democracy can provide the foundation for strong political democracy. We strongly endorse this national and international collaboration on a tripartite basis.

8. We have prepared our recommendations in the field of labour and employment in the light of these general considerations. The Government issued in August 1955, a statement of comprehensive labour policy in considerable detail ; but we have not attempted to discuss all the problems it covered : this chapter discusses the main problems of labour and employment considered from the standpoint of the country's economic and social development.

## EMPLOYMENT AND UNEMPLOYMENT

9. The extent and character of employment, the occupational structure of the country and the changes it is undergoing, and the social and economic factors underlying unemployment are important subjects for study, which is hampered by the lack of statistics. The 1951 census showed that about 30·7 per cent of the country's population was in the civilian labour force, either working or looking for work. The census data do not show how many of those in the labour force* were employed and how many unemployed. The vast majority of the civilian labour force in 1951 reported itself as working in agriculture : about 75 per cent was engaged in agriculture ; the remaining 25 per cent included all those in industry, trade and commerce, transportation and communications, government and other non-agricultural employment. The 1951 census attempted to ascertain the industrial and occupational distribution of the labour force. The results are not very trustworthy. In Table 1, however, we present a summary of the industrial distribution to show roughly how people were making their living.

### TABLE 1

*Civilian labour force according to major economic groups, February,* 1951

| Major economic group | Total number of workers |
|---|---|
| Agriculture ... ... ... ... ... ... ... ... | 17,125,000 |
| Mining ... ... ... ... ... ... ... ... | 11,000 |
| Manufacturing (including small and cottage industries) ... ... ... | 1,419,000 |
| Construction and utilities ... ... ... ... ... ... | 206,000 |
| Trade and commerce ... ... ... ... ... ... ... | 1,151,000 |
| Transportation ... ... ... ... ... ... ... | 302,000 |
| Posts and tele-communications ... ... ... ... ... ... | 12,000 |
| Education ... ... ... ... ... ... ... ... | 82,000 |
| Medicine ... ... ... ... ... ... ... ... | 57,000 |
| Government ... ... ... ... ... ... ... ... | 450,000 |
| Domestic and personal service ... ... ... ... ... ... | 662,000 |
| All other (including unemployed and unclassified) ... ... ... ... | 915,000 |
| Total ... | 22,392,000 |

total pop 73.9

*Source* : Census of 1951.

NOTE :—Not all the labour force was directly enumerated by the census ; in addition to those covered by Table 1, there were probably over one million more in 1951 about whom there is no specific information.

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*" Labour force " includes all persons over 12 years of age who are self-supporting or earning dependents or seeking work.

## Changes in the labour force

10. At least three major changes are taking place in the labour force. First, it is growing rapidly in size as the population increases. We have no accurate current data, but if the proportion of the population in the labour force is assumed to remain what it was in 1951, the labour force was about 25·2 million in mid-1955 and will be about 27·1 million in mid-1960. In other words, a little over 350,000 people are added every year to the labour force. If they find jobs they will add to national production and income ; if they do not, they will be a net liability, because they will have to be given food and clothing although they produce nothing. It is a major purpose of development planning to ensure that everyone who is able and willing to work has the opportunity of useful employment.

11. Second, the quality of the labour force is improving as the level of education and training in the country rises. This is one of the most important aspects of development. As the average employed person becomes better trained and more highly skilled, his output and income will rise. This can and should happen in all occupations : cultivators, artisans in village and city workshops, factory hands, office workers, managers, people in the professions—all of them need better education and training, which will help them to produce more ; because they produce more they can enjoy higher incomes. This rise in skills, outputs, and incomes is an essential part of the process of economic development ; the national income can grow only as rapidly as people in all occupations produce more. It must be a central purpose of any development planning to raise the level of skills and training of the labour force.

12. The third major change taking place in the labour force is a shift from employment in agriculture to employment in industry and the services. Although no accurate data are available, there is no doubt that the proportion of workers in agriculture is declining and the proportion in industrial and service occupations rising. For the time being it is quite likely that the numbers of people engaged in most occupations will rise, but the rise will be much faster in industry and the services than in agriculture. The shift away from agriculture will inevitably be accompanied by substantial increases in urban populations, giving rise to economic and social problems. Even if a policy of dispersing industrial plants is followed, which has much to commend it from both the economic and social standpoints, there will still inevitably be steadily larger concentrations of people. The shift towards industrial employment and urban living has occurred in every developing country in the past, and the process is likely to continue in this country. These major changes affecting labour and employment—the increased size of the labour force ; the rise in the average level of skill, production, and income in all occupations ; and the increasing proportion of people in industrial and urban employment will have their full effects only slowly. But they are going on continuously, and all our policies must be framed to take account of them.

## The need for employment statistics

13. At present the changes taking place in the labour force cannot be measured for lack of even reasonably accurate and up-to-date statistics on the number of persons at work in different occupations and industries. The Ministry of Labour, with the help of advisers from the International Labour Organisation, has almost completed a survey which will give very useful information about manpower in 1955 ; some of the preliminary results of this survey have been of substantial help in preparing this Plan. But unless there is a programme for obtaining such information regularly, it will be impossible to measure the changes taking place in the labour force, in employment and unemployment, and in the distribution of workers among occupations and industries. We strongly recommend that

the manpower survey work should be expanded and placed on a permanent footing as a part of the work of the proposed National Sample Survey Unit of the Central Statistical Office recommended in the chapter on Statistics.

### Employment opportunities

14. Not enough is known about the number of people now employed in the different industries and occupations to make an accurate projection of how the development Plan will change the level and distribution of employment during the next five years. It is possible, however, to discern fairly clearly some prospective changes, and some estimates will be available soon. In January and February, 1955, the Ministry of Labour conducted the first part of its manpower survey. About 5,000 employers in industrial, financial, transportation and other types of establishments, both governmental and private, were visited and asked for information about their current employment and their forecasts of employment six months later. The results are summarised in Table 2.

TABLE 2

*Current and forecast employment in 5,000 selected establishments*, 1955

| | Employment January—February, 1955 | Forecast of employment six months later | Percentage increase forecast |
|---|---|---|---|
| Unskilled ... ... ... ... ... | 329,000 | 349,000 | 6·1 |
| Semi-skilled and skilled ... ... ... ... | 317,000 | 380,000 | 19·9 |
| Highly technical personnel ... ... ... | 25,000 | 27,000 | 8·0 |
| Administrative, managerial and clerical workers ... | 99,000 | 103,000 | 4·0 |
| Total ... ... | 770,000 | 859,000 | 11·5 |

*Source* : Ministry of Labour.

15. Two conclusions stand out from these figures. First, the increase in employment which these employers expected was extremely rapid—89,000 workers, or 11·5 per cent, in six months. These expectations could not, in many cases, be fulfilled. Even if work-men with the necessary skills were available, other resources needed—such as raw materials, power, and imported machinery—might not be available as required. Nevertheless, the figures do show how rapidly employment opportunities were rising in the establishments surveyed. The details of the survey show that the expected increases were even higher in certain industries, particularly manufacturing. Employment in spinning, weaving, and finishing of textiles, for example, was expected to rise by 35 per cent; in manufacture of glass and glass products by 48 per cent; in iron and steel by 29 per cent. The Ministry of Labour propose to continue regular surveys to find out what has happened in these establishments since the first survey and to obtain forecasts for later periods. The results of the first follow-up survey are now awaited.

16. The second outstanding conclusion from the earlier survey is the much higher rate of increase that was expected in the employment of semi-skilled and skilled workmen—20 per cent, as compared with 6 per cent for unskilled workers. A high demand for skilled labour is characteristic of the process of rapid industrialisation. A shortage of well-trained workmen must be expected for years to come, and the growth in our national production and income will be slowed down unless programmes of technical education and training are promptly devised and executed.

17. The Ministry's survey of 5,000 employers provided forward estimates for only six months. What will be the rise in employment by 1960 ? We have been able to make rough estimates for large-scale industrial establishments—defined as those using power and employing 20 or more workers. The number of employees in such establishments was of the order of 200,000 in 1947. In 1954-55, this figure had risen to nearly 400,000, and by 1959-60 employment in large-scale industrial establishments is expected to reach nearly 600,000 under the industrial expansion programme we propose. Such a rise in industrial employment will, of course, result in large numbers of additional jobs in service occupations and other types of secondary employment, but we do not have data on which to base estimates.

18. For other fields of employment we are not in a position to make firm projections. The Ministry of Labour has not yet completed its first survey of small-scale enterprises, and the existing figures are not reliable. In the census of 1951, only 1,400,000 workers reported themselves employed in industry, large and small scale-alike. This was probably a substantial under-estimate. Even if it were correct, and if allowance were made for those employed in large-scale industry, it would indicate that about 1,100,000 were employed in cottage and small-scale industry. The figure commonly stated for employment in cottage and small-scale industry is three to four million, and figures as high as seven million have been mentioned. Until we have a firmer base for estimation, we cannot make estimates of the present level of employment in this field or its likely course during the Plan period.

19. Similar uncertainties exist in several other fields. Almost nothing is known, for example, about employment in small commercial enterprises—bazar shops, hawkers, tea stalls, etc.—or in construction. We have made some very rough calculations of the extra employment resulting from our programme : perhaps 200,000 additional workers will be employed in the public sector, and a greater number in the private sector ; but we do not claim much reliability for these figures.

20. In agriculture also, it is very difficult to visualise the present situation and the changes that are likely to take place. There seems to be no doubt that for several decades at least, as the population has been increasing, the number of those seeking to make a living from agriculture has also been increasing. There is no doubt also that in recent years considerable numbers have moved into the cities and towns to find other employment. On balance, the agricultural labour force is probably growing, but we have no reliable figures.

21. We have some rough basis for estimating increases in farming opportunities. During the Plan period, the area under crops is expected to increase by about 2·8 million acres. In addition, better irrigation facilities will be available to about 3·5 million acres of land which are already under cultivation. Of the 2·8 million acres, 1·2 million acres will be in fairly compact blocks served by major irrigation projects and would provide employment to about 100,000 families at the rate of 12 acres to a family. The remaining 1·6 million acres will be served either by tube-well projects or by minor irrigation and reclamation schemes, mostly lying within the areas already under cultivation. Of

this, about 240,000 acres will be in isolated blocks, and at the rate of 12 acres to a family about 20,000 families will find employment on such land. Of the 1·6 million acres, the remaining 1·36 million acres will be in small scattered patches of land which is expected to go towards relieving, to some extent, the prevailing under-employment among 450,000 families by the provision of additional land to work on, which may be of the order of 3 acres per family. On a rough basis this might be equivalent to providing holdings to 113,000 families. The provision of assured water supply and better drainage facilities to some 3·5 million acres will permit of more intensive cultivation than at present and provide more work to about 764,000 cultivating families which are now supposed to be under-employed. Again on a rough basis, this might be equivalent to providing holdings to 191,000 farm families. To sum up, in all about 120,000 farm families may find employment on the new farms in addition to relieving under-employment among 1,214,000 existing farm families which may be taken as the equivalent of creating employment opportunities for 304,000 farm families.

22. We are proposing, as a very important part of the Plan, that use should be made of people now unemployed or under-employed in rural areas. Many parts of the Village AID programme, and of the programme of rural development outside Village AID areas, are intended to use this idle manpower. The building of schools and other community buildings ; construction of drains, bunds, wells, and compost pits ; planting trees and cleaning fish ponds ; building village roads and streets,—all these and many other tasks can be accomplished ; by men and women who are now in the villages and ready to do the work with some technical assistance and supplies of materials not found locally. We cannot estimate how many people can thus be employed until more information is available about the actual work of the Village AID development areas, but the numbers may be large.

23. We have not found it possible to make any reasonably accurate assessment of the present distribution of the labour force by industries, or of the expected distribution at the end of the Plan period, or of unemployment and under-employment at either the beginning or the end of the Plan period. We regard this as an important item of unfinished work for the Planning Board. As more information becomes available from the manpower survey and other sources, further employment estimates will be possible. We should nevertheless record our impression that the Plan, with its strong emphasis on schemes creating income and employment, will result in enough jobs during the next five years to match and perhaps exceed the increase in the size of the labour force. As development increases in tempo in subsequent Plan periods, it should be possible to ensure more employment opportunities than there will be new entrants into the labour market—although in the long run this will depend in part upon the rate of population growth.

**Employment training**

24. Inspite of our inability to prepare estimates of the distribution of the labour force as a whole, we have been able, through information provided by the Ministry of Labour (including that summarised in Table 2) and through estimates prepared by the Board itself, to make some rough estimates of the needs for different categories of skilled and trained people. These rough estimates have been used in drawing up our programme for education and training particularly for technical education, which is discussed in the chapter on Education and Training. We wish to emphasise here, however, one or two major policies which underlie that programme. In brief, we believe that the educational system—including technical and vocational training institutions of all types—should give people a foundation of knowledge and skills, and that the employers should build on that foundation and turn out finished craftsmen and technicians through apprenticeships, on-the-job training, and other methods. The schools should turn out men and women capable of learning job skills quickly and easily, but " the place for the basic training of the worker

or artisan is at the machine or at the bench in the factory ........... Industry can no more expect to be supplied with workers already trained than can the army expect trained soldiers in their raw recruits ". (Report of the I.L.O. Labour Survey Mission, 1953, p. 19).

25. We strongly urge that businessmen should take the initiative in organising ambitious training programmes in their establishments. The needs for supervisors and for skilled and semi-skilled workers are very great. To meet them, firms should instal programmes for apprenticeship, for on-the-job training, for rapid up-grading and promotion, and for diluting skills by organising the work so that the few skilled people spend their time doing tasks that require full skills and tasks that can be accomplished by people with less skill are delegated. Systematic methods for doing these things have been developed in many countries in recent years, and are beginning to be applied in this country. The training-within-industry programme begun under the auspices of the Pakistan Industrial Development Corporation, the programme of the Institute of Business and Public Administration at the University of Karachi, the work of the Institute of Personnel Administration, all these are steps in the right direction, which will help to build effective training systems in private businesses and public agencies. Government agencies, associations of businessmen, individual industrialists, all should give strong support to these endeavours, which can have a very sizeable effect on the rate at which our production is expanded.

### Employment exchanges

26. The Government's employment exchanges can be of considerable assistance in meeting the need for workers, by matching job requirements, and available skills, by assisting the movement of surplus workers from one geographical area to another, by advising workers and students on trends in job opportunities, and by appraising the government and businessmen of needs for training and the location of new industrial units. The employment exchanges will not be able to perform these functions satisfactorily without a substantial improvement in the efficiency and quality of their work. This is well recognised by those responsible for the employment exchanges, as well as by those who use their services. An expert made available by the International Labour Organisation surveyed the exchanges and submitted a comprehensive series of recommendations in 1953. Among his recommendations were :—

(*a*) To provide a more adequate staff both in quantity and quality ;

(*b*) To instal a systematic programme, both for training new employees and for re-training those now employed ;

(*c*) To improve management methods and procedures, by instituting a straight line of responsibility and authority from top to bottom of the exchange organisation, specifying clearly the duties of all officers, installing a regular system of inspection, forming advisory committees at regional and local levels, and by other means ;

(*d*) To develop employment counselling within the existing frame-work of the employment exchanges, in order to guide schools and college students and their parents in the wise choice of careers ; and

(*e*) To improve labour clearing, employer relations, statistical reporting, agricultural and seasonal employment services and other special functions of the exchanges.

In addition, the expert recommended that several additional employment exchanges should be opened to serve areas not now served adequately.

27. We believe these recommendations make a sound programme for improving and expanding our employment exchanges. The exchanges have now been placed on a permanent organisational footing and the Ministry of Labour plan, with expert assistance to put the recommendations into effect. We have included in the Plan funds for this purpose,

providing for six new employment exchanges to add to the twenty already working. The location of these new offices should be determined by the Ministry of Labour in relation to present and prospective levels of employment in the different geographical areas. Although we have included funds for new exchanges, we should emphasise that it would not be advisable to spend money on new exchanges until the present ones are running efficiently.

## WAGES AND EARNINGS

28. The level of wages and incomes in different trades, the different rates of pay for different levels of skill and in different geographical areas, the trends in earnings compared with prices are all important matters on which the available data are very scanty. The data we have on wages are fragmentary and do not permit us to draw firm general conclusions. We know, for example, that wages of hired labour in agriculture are rarely as much as Rs. 1-8-0 per day, and are frequently less than one rupee. We know that wages of coal mine workers in various fields in 1949 ranged from Rs. 1-3-0 per day for unskilled labour to Rs. 5-8-0 per day for sirdars. We know that average annual earnings of factory workers as reported under the Payment of Wages Act, rose from 710 rupees in 1948 to 872 rupees in 1952, though the meaning of these figures is not clear, because they might have been affected substantially by changes in the composition of the work-force in individual factories or by the establishment of new factories paying higher average rates of wages. A good deal of information about wages is available for a group of factories in East Pakistan in 1953 and 1954 showing an average wage of Rs. 61 per month, and about earnings of rickshaw drivers in Dacca during the same period, averaging Rs. 83 per month. (Professor A. F. A. Hussain's Human and Social Impact of Technological Changes in Pakistan, University of Dacca, 1954).

29. These various sources of information confirm that wages in this country are low relative to those in many other countries ; they indicate also that average wages may have been rising somewhat. This is consistent with the rising trend in the *per capita* incomes which is shown by the national income estimates. The available information on wages, however, falls far short of what we need. We have no reliable series of wage data over a period of years. We do not have information on the scales of earnings for different occupations and different degrees of skill. We know very little about methods of wage payment—time work, piece work, etc. All these and many more questions need persistent inquiry if individual workers, businessmen, trade unions, and the government are to make informed decisions.

30. It is necessary also to know the relation between wages and prices. There are no reliable wage series, but the Central Statistical Office does publish a series of indices of the cost of living for industrial workers in five places in the country. The figures for Karachi, Narayanganj, and Lahore are shown in Table 3.

TABLE 3

*Cost of living index for industrial workers*, 1949—55.

(1948-49=100)

| | 1949-50 | 1950-51 | 1951-52 | 1952-53 | 1953-54 | 1954-55 |
|---|---|---|---|---|---|---|
| Karachi ... ... ... | 98 | 95 | 100 | 104 | 112 | 109 |
| Narayanganj ... ... ... | 103 | 98 | 104 | 109 | 106 | 90 |
| Lahore ... ... ... | 93 | 81 | 91 | 98 | 100 | 97 |

*Source* : Central Statistical Office.

At present this series is not considered thoroughly reliable ; the Central Statistical Office is in process of improving it. Nevertheless, although small changes in these index numbers are not significant, and they may have a downward bias, it appears likely that for consumers who buy mostly items produced within the country, prices have not risen substantially during the past six years.

### Wages and productivity

31. It is clear, even from the scanty data available, that wages and earnings in this country are low compared with those in more advanced countries. It is a major objective of development planning to bring about a rise in real wages—in the amount of goods and services that can be bought. To what extent can this be done during the Plan period ? There are some serious cases of particular types of workers whose wages are held down by exploitation or some special disadvantage. These cases should be rectified,—we discuss them later (paras. 47 and 48). Generally, however, the inescapable fact is that wages in this country are low not because of exploitation alone but because production per worker is low. Real wages can increase substantially only when productivity is increased. The very high wages paid, for example in the United States, are possible because the output per worker in that country is very high.

32. Production per worker depends in part upon the training and skill of the worker. It depends also on the tools and equipment which he is given to work with, the efficiency with which the work is organised and managed, and the effort which he puts into his work. The importance of better training, both in schools and on the job, has already been noted (paras. 24 and 25). The provision of better tools and equipment is essentially a matter of capital investment ; the limits are discussed in the chapter on Financial Resources. We should like to stress here the other two determinants of high productivity ; the efficiency of organisation and management, and the effort and zeal of employees.

33. There is no denying the fact that most establishments in this country, large and small, government and private, are run with far less efficiency than is possible. The result is less production than could be obtained with the labour and capital employed. It must be a major objective of managers in public and private enterprises to improve efficiency steadily and rapidly. One example of what can be done is provided by the experience of a textile mill in Karachi, which recently has been able, with the advice of experts on productivity from the International Labour Organisation, to increase the output in its weaving shed by 40 per cent. Under such circumstances, output can be increased, prices lowered, and wages raised, to the benefit of everyone concerned. The work of these productivity experts should be expanded into a National Productivity Centre, as is recommended in the chapter on Industries, and should be spread far and wide through the country's factories and shops.

34. The level and type of wages, too, have an important bearing on the willingness of employees to work hard on the job, and also to get particular jobs. Managements which pay relatively good wages can and do obtain better performance from their workers. It is often possible to secure more output and enable workers to earn more by using sound incentive wage systems—*e.g.*, a " suitable system of payment by results." (Report of the I.L.O. Labour Survey Mission, 1953, p. 21). Good wages are also necessary if young men and women of ability are to be induced to undergo occupational training. The Government can usefully apply these principles in the salary scales of some of its own departments : its scales of pay for agricultural specialists and teachers, for example, are clearly too low in many cases to attract the quality of people needed, and to enable them to devote their full energies to the job.

35. Over the Plan period, the rise in productivity and real wages will necessarily be limited by the time required for managers and workers to learn efficient methods of running the many new establishments. Nevertheless, as new investment takes place, as better education and training programmes come into effect, and as managers and workers learn efficient operating methods, productivity should rise steadily, permitting a corresponding rise in real wages and other incomes.

### Minimum wage legislation

36. Another aspect of the problem of wages is the question whether minimum wages should be established by statute. The major argument in favour of this is that trade unions and collective bargaining will not for some time be strong enough to protect all workers, particularly those in great need of protection. There is at present no law fixing minimum wage rates or setting up machinery to determine them. Government can either establish a lower limit for wages—making it illegal to pay anyone less than a certain amount per hour or per day in order to stop exploitation of labour—or fix scales of wages for all occupations in all industries, perhaps with the advice of a special Board. We consider that setting minimum wages in all industries and for all occupations is not feasible. However, it is the duty of Government to take action to eliminate the worst forms of exploitation, and we recommend that a Statutory Board should be established to look into the position of certain classes of exploited workers, and to advise the Government in fixing minimum wages for them. Such a law would be difficult to administer, requiring inspection of many work-places, including the small shops and establishments, which include the worst offenders, but a beginning should be made. To benefit from the experience of other countries, we recommend that a special study be undertaken by the Ministry of Labour to find out what policies and methods of enforcement have proved effective in those Asian countries with minimum wage legislation. In the meantime, the measures we recommend for commencing minimum wage regulation in this country will begin to provide some experience as a guide for further advances.

### Fair wage clauses in public contracts

37. All contracts of the Public Works Department of the Central Government contain a " fair wages " clause, which provides that the wages paid by government contractors should not be less than the prevailing rates in the locality concerned. We recommend that similar clauses should be included in contracts of all departments of the Central and Provincial Governments and other public bodies like municipal corporations. The inclusion of such clauses and their vigorous enforcement will prevent many abuses and help to set good standards of wage rates.

## WORKING CONDITION

38. " Working conditions " in a narrow sense mean the conditions under which a job is actually carried out in a factory, shop, vehicle, or elsewhere. In a broader sense the term is nearly synonymous with living conditions, and includes housing, educational and recreational facilities, medical care for families, and so on. In general, working conditions on the job are regulated by occupational safety, health and other laws, and the living conditions of workers form the main object of " labour welfare " work.

39. The working and living conditions of employees are very different in different employments ; changes in some instances have come rapidly, in other instances slowly, if at all. The most spectacular changes are those which have come with the establishment of large new factories, such as jute, cotton, paper, soap and sugar. Hundreds, sometimes thousands, of workers have been assembled, organised, and subjected to the new discipline

of the factory. Frequently these workers are drawn from the villages, and often they leave their families behind. In other cases, as in Karachi, most of the factory workers are already town dwellers. In either case, the problems of health and sanitation, of transportation, housing and food are difficult and serious. In addition, the problems of social adjustment to new and strange environments may cause considerable strain.

40. Although major stresses and strains accompany work in new and large factories, workers there in general receive better wages and better treatment than those in older and smaller urban establishments or in mining and port employment. Considerable evidence was collected by the I.L.O. Labour Survey Mission in 1952 and 1953, and published in their Report on Labour Problems in Pakistan (Ministry of Labour, 1953).

### Enforcement of protective legislation

41. Working conditions in this country are regulated by a series of laws prescribing minimum standards which employees are required to observe, for hours of work, rest periods, holidays, safety and health conditions, and the protection of women and young workers, The I.L.O. Labour Survey Mission expressed the opinion that these laws, with certain relatively minor exceptions, are " by and large adequate for the needs of the country at present and probably for some time to come ". (p. 158). The major need is for better inspection and enforcement of the existing laws. The Mission's Report cited instance after instance in which it found that men and women were employed under dangerous or insanitary conditions and required to work long hours without rest, children under twelve were employed, and other conditions existed which violated public policies declared by law. We recommend immediate and vigorous improvement in the enforcement of protective labour legislation.

42. Some of these laws are enforced by the Central Government—for example laws applicable to mine labour and dock workers. Most of them, however, are enforced by the Provincial Governments. In either case, the requirements for improved enforcement are clear. They are : better administrative control and supervision by senior officers ; clear assignments of responsibility and reporting ; better selection and training of inspecting officers, and in some cases improvements in their pay and status ; and some addition to the number of inspectors. These matters were discussed in considerable detail by the I.L.O. Labour Survey Mission. We agree in general with their detailed recommendations.

### Central factory advisory service

43. One important step recommended by the I.L.O. Mission to improve factory inspection throughout the country was the establishment in the Central Ministry of Labour of a small Factory Advisory Service, to include experts on occupational health and safety and on special problems of women workers. We endorse this recommendation. Such a service could perform several very useful functions including :

(*a*) Examining plans for new factories, particularly those with any degree of hazard for employees, and advising on how they may be improved in the cause of occupational safety and health ;

(*b*) Drafting standard rules and regulations under the provisions of the various protective Acts, for the guidance of the Central and Provincial enforcement agencies ;

(*c*) Preparing instructions for the information and guidance of factory inspectors, and leaflets and posters for both management and workers ; and (*d*) Holding conferences and participating in training courses for inspectors and others associated with the enforcement of protective legislation.

In short, the Factory Advisory Service would act as a centre of initiative, stimulation and support for the strong programme of improved enforcement that is required. We have included in the Plan funds to establish and operate this service during 1955—60.

### Provincial inspection of work places

44. We were glad to find, in discussions with Provincial Governments, general agreement on the necessity for a rapid improvement in the enforcement of protective legislation. We have included in the Plan funds to support such improvements. Provincial officials agree that, as enforcement of the law is improved in the larger work-places, enforcement should be extended to the smaller ones, where some of the worst conditions are to be found. In most cases, existing laws can be extended to cover additional workplaces by decision of the Provincial Governments, without further legislation, and we urge that this should be done as rapidly as improvements in the inspection staff permit enforcement. We believe that the major pieces of legislation—regulating safety, health, and child labour, for example —which now apply generally to places employing 20 or more workers, could be extended by the end of the Plan period to places employing 10 or more and possibly to those employing 5 or more. Administrative vigour and determination are the crucial requirements.

### Industrial Employment (Standing Orders) Act, 1946

45. The Standing Orders Act requires that employers should post prominently in the workplace, the terms and conditions under which workers are employed, and that these statements must be certified by the Government to be consistent with the law. This is a valuable protection for workers, but hitherto it has not been widely enforced, partly because of limitations in the enforcement arrangements under the Act. Some minor amendments in the law would seem desirable to simplify and improve enforcement, and the authorities should extend the enforcement of the Act widely and rapidly.

### Employment (Record of Services) Act, 1951

46. The Record of Services Act is the only fresh piece of legislation in the field of labour which has been enacted in the country since independence. It requires the maintenance of a service book for each employee, to show the length of his employment and the work performed by him in each job held. The law was enacted in 1951, but it has not been brought into force so far by either the Central or the Provincial Governments, nor have the rules for enforcement been drawn up. The Governments should take the necessary steps to put the Act into force quickly.

### Contract labour

47. There is no doubt that the system of contract labour—that is, labour recruited or employed not directly by the employer but indirectly through an intermediary, the contractor—opens the way to many abuses. It enables the principal employer to escape many of the provisions of the present labour laws, and can be used by him to evade his normal responsibilities for the safety, health and reasonable pay of the people who work for him. Employees under the contract labour system are often ruthlessly exploited by the contractor. It is a system which has nothing to commend it in modern circumstances, and has gradually died out in most advanced countries.

48. The contract labour system is widespread in this country. The first report of the Ministry of Labour's manpower survey showed that of a total of 98 categories of employers covered, there were 58 in which the employment of contract labour was reported. It is not easy to eliminate the abuses of the system and move towards direct recruitment, control, and payment of workers by employers. Several steps can, however, be taken which will help. The full development of an adequate system of employment exchanges will contribute a good deal, because that will make it easy for employers to obtain the workers they need without using labour contractors. The various protective laws, such as the Shops and Establishments Acts and the Standing Orders Act, should be made applicable to contract labour, wherever possible, in order to prevent employers and contractors from exploiting contract workers. Labour welfare organisations in the Central and Provincial Governments should appoint special officers concerned solely with the welfare of contract labour : the Central Public Works Department has already appointed one or two officers for this purpose. We expect employers and workers also to realise the unhealthy and inefficient characteristics of an employment relationship built around an intermediary whose stocks-in-trade is the labour of other men. We believe that an energetic attack on this system is warranted and can bring good results.

### Tea plantation workers

49. The 90,000 workers on the tea estates in East Pakistan present many special problems requiring different treatment from that applied to most other workers. The I. L. O. Survey Mission recommended a number of special measures, such as the provision of creches for women workers, and of paddy land for tea garden labourers to grow their own food. During the discussions on this matter with the Government of East Pakistan, it was suggested that a special enquiry should be made into the conditions of tea garden workers in order to draft specific recommendations. We suggest that the proposed Labour Research Bureau of the Ministry of Labour should undertake this enquiry in consultation with the Government of East Pakistan.

## LABOUR WELFARE

50. In addition to the regulation of conditions in the work-place, it is generally accepted now-a-days that government should take responsibility for encouraging and promoting the welfare of working people. The welfare of workers cannot be separated from the welfare of the general public, and every thing in the Plan that is designed to improve the standard of living in the country will contribute to labour welfare. Nevertheless, the welfare of workers in their living places and outside working hours has been generally neglected in this country—with a few conspicuous exceptions. We believe that it is desirable, as the I. L. O. Mission recommended, to appoint government officers whose full-time duty would be to investigate the welfare conditions of workers and to plan and carry out measures to improve them.

51. The Mission recommended that the Central Government should create a post of Chief Welfare Commissioner, equal in status to the Chief Labour Commissioner, to study and introduce modern welfare practices and to advise Government organisations and private industry on labour welfare matters. In the Provinces a similar need exists, though whether there should be Welfare Commissioners independent of the Labour Commissioners will have to be decided in the light of administrative considerations in each province. In any event, senior full-time officials should be assigned to this work and provided with adequate staff. Funds for this prupose have been included in the Plan. The duties of these officers will be largely to study and advise on matters, such as housing, community services like health and education, and recreation, which are of great importance to workers

but are not covered by the usual employment contract. The labour welfare officers should in particular work closely with the social welfare agencies which we are recommending in this Report.

52. It has been suggested that labour welfare centres should be established in important industrial areas to provide health, education, and welfare services and to stimulate self-help activities among workers and their families. A few of these centres are now being established in West Pakistan. We believe that this is a promising idea, and recommend that the experience of the first centre should be carefully studied with a view to working out plans, in conjunction with the social welfare agencies, for establishing them in all industrial areas. In order to finance operations of this type, we recommend the levy of a special welfare cess somewhat on the lines of the Coal Mines Labour Welfare Fund Act, 1947 : it might be based on the number of persons employed in an establishment, and the funds might be administered by a joint body of representatives of workers, employers, and government. The details of such a proposal will require careful study.

## TRADE UNIONS AND INDUSTRIAL RELATIONS

53. The trade union movement in the country is still relatively small. Unions exist in relatively few enterprises, and not all the unions that exist influence the terms of employment of their members. By far the greatest proportion of decisions about wages and working conditions are made by individual bargaining between employer and worker—in which the worker is inevitably at a great disadvantage. The importance of the trade unions, however, is much greater than their numbers or membership would indicate, because in obtaining better terms from employers they set advanced standards, which tend, however, imperfectly and slowly, to spread throughout the economy. Furthermore, there is no doubt that the unions are growing steadily : the number and membership of trade unions registered under the Trade Unions Act, 1926, increased from 150 and 192,000 to nearly 400 and 420,000 respectively between 1948 and 1954. During this period also there occurred a substantial amalgamation of unions under the All Pakistan Confederation of Labour, with its two constituents, the East Pakistan Federation of Labour and the West Pakistan Federation of Labour. Together these organisations claim a total membership of nearly 300,000 workers, including some members of unregistered unions.

54. The growth of trade unions has been supported by government policy. The country has adopted the International Labour Organisation conventions on freedom of association, collective bargaining, conciliation, arbitration, and co-operation between workers and employers. The Government in August 1955 stated its policy as being " to encourage growth of genuine and healthy trade unions ". This is a sound policy for a country whose development programme is aimed at increasing the well-being of common-man. In its modern stage, the trade union movement is rightly looked on as a means for introducing democratic processes into industrial life. Joined together in their unions, workmen can obtain a voice in the settlement of the terms and conditions under which they spend their working lives. Employers also have much to gain from the existence of responsible, democratically-controlled organisations which can speak with authority for their workers. From the standpoint of the country, the efficiency of production and the distribution of income will both be improved if wages and working conditions are, in general, determined through collective bargaining by the free decisions of responsible representatives of workers and business concerns, and democratic organisations exist in workplaces through which the legitimate desires and grievances of employees can be adjusted.

55. These are thoroughly desirable objectives, but it is necessary to recognise how far the country is from reaching them. At present, both managers and union leaders are for the most part inexperienced and often inclined to approach their mutual problems on

an emotional rather than a rational basis. The leaders of unions frequently are not men from the workbench but instead educated outsiders. This has been necessary in the past because of the absence of men in the ranks who could exercise effective leadership, but it has led to some abuses and should be reduced as internal leadership is developed. There is a multiplicity of unions representing the same workers, frequently several in one plant or factory, which makes for confused industrial relations. The workers have not in all cases identified the leaders and organisations whom they can trust to represent their interests properly, and to turn away from those who have political or ulterior motives. Employers, too, have much to learn and many archaic attitudes to outgrow. To many of them think of unions as simply outside interference with the management of the business, to be opposed or at best tolerated. Few managers in this country have yet come to understand or apply modern personnel practices, and to encourage joint consultation and co-operation with unions. To put the matter bluntly, there are too few businesses where a worker is made to feel that he is respected as a human being and welcomed as a partner in production.

56. These matters are of very great importance and require the most serious attention of all concerned. In a time of rapid industrialisation and major economic change, labour relations can be expected to be somewhat turbulent. On the whole, past experience has been fairly good. From 1948 to 1954, the Central Government referred 33 disputes to industrial tribunals under the Industrial Disputes Act, 1947. This is an average of only four a year. The Provinces have referred a number of additional cases to tribunals, but even so there have been remarkably few serious industrial disputes. It would be a mistake to read too much into this evidence : had the unions been stronger they would undoubtedly have pressed harder for gains for workers and more disputes would have resulted. There are, furthermore, very serious problems of relations between workers and management, and relations among workers, which may not find expression in the usual type of industrial dispute. The seriousness and importance of these problems are underscored by the riots which occurred in 1954 at two of the biggest industrial installations. The causes of these disasters went far beyond the ordinary scope of relations between workers and employers, but they indicate very clearly the powerful tensions that may develop in newly industrialising countries, and must be resolved if industrial development is to bring progress and satisfaction to the workers. Everyone concerned with the development of sound industrial relations should take this lesson to heart.

### Training in industrial relations

57. It is vitally important that both unions and managements learn rapidly the results of hard experience in other countries, to avoid as many as possible of the mistakes that others have made and the bitterness and strife that often accompanied the development of collective bargaining in the past. A beginning has been made with the training of union leaders in trade union training centres, sponsored by the labour organisations in the country in collaboration with the International Confederation of Free Trade Unions. A workers' Education Society has been started in West Pakistan, and a government sponsored training scheme prepared in East Pakistan. Some training courses have also been organised under the auspices of the Pakistan Institute of Personnel Administration. Such training should be continued and strengthened, and opportunities found to send some of the union leaders abroad to learn at first hand the attitudes and practices of other countries. Though such training, in general, will proceed better if carried out by private organisations, it would be appropriate for the government in certain cases to share the cost.

58. Training in business management is in its infancy in this country ; as it develops, more and more people entering the managerial profession will have had basic instruction in personnel management and labour relations, which are part of the curriculum of any modern management training institution. Special courses, such as those conducted by the Institute

of Personnel Administration, can also help those already in management positions. Along with more training opportunities, there must come a change in the attitude of many business leaders, who need to realise that sound and constructive employee relations are one part of good business management ; many should employ officers specially trained in labour problems. The universities, particularly those in Karachi, Lahore and Dacca, should now add to their activities the study and teaching of industrial relations and labour economics. Careful, disinterested research and advanced scientific thinking are needed both for many of our practical problems and for producing men and women capable of advancing to posts of high responsibility in government, business and the labour movement.

### Statutory recognition of unions

59. The Government's role in stimulating the growth of healthy, responsible unions and constructive labour relations is difficult in a country where rapid industrialisation is taking place. With trade unions relatively young and weak, the government has a special responsibility to ensure minimum of social justice to workers. At the same time, the objective must always be to help unions (and managements) to handle their own affairs without interference from government. As the next major step in applying the government policy to encourage the growth of healthy trade unions, we recommend legislation for the statutory recognition of trade unions—that is a system under which employees choose which union they want to represent them. The unions chosen by them are recognised as the bargaining agents for them, and the employers are required to deal with such unions only. It will not be easy to administer such a statute : arrangements will be required for investigating individual situations and making decisions on such questions as : what is the proper bargaining unit (craft, plant, company, industry, or other unit) ; which should be recognised bargaining agent of the workers (if necessary to be settled by an election), and how long the recognition should hold good in any given case. The legislation should also protect workers against victimisation for union activity, and check strikes caused by disputes between unions about their conflicting claims to represent a given group of workers.

60. The benefits of such legislation should be considerable. It will provide an orderly, democratic and legally enforceable system by which employees can select their bargaining agents and have them recognised by employers, thus removing the prospect of strikes for recognition. It will provide for only one union to represent a given group of workers, which will be a considerable advantage for employers, now frequently faced with the demand to bargain with two or more unions on behalf of one group of workers. By making a union responsible for bargaining on behalf of all the members of a given unit, it will require union leaders to account for their decisions to those who are directly affected. In these and other ways, we believe that a union recognition statute would greatly assist the growth of healthy and mature union-management relationships.

61. An improved system of union-management relations would not eliminate all industrial disputes : the purpose of union recognition is to create fair and constructive relationships between the parties and then to leave them free to work out their own solutions to the issues between them. Inevitably, in a system of free collective bargaining there are cases where, for instance, inexperience or miscalculation leads to strikes or lockouts before agreement is reached. The government can do a good deal to help through an effective system of conciliation by experienced officers whose responsibility is to assist the parties to reach a mutually satisfactory agreement. With the growth in organised industry and commerce there will be growing need for effective conciliation services : funds are included in the Plan for both additional staff and training.

62. The government can also help the parties to reach agreement in important cases by appointing courts of inquiry to find and report the facts of the disputes. In those few cases where a stoppage of work would seriously harm the public interest, the government can,

under present law, appoint industrial tribunals to hear and decide the dispute, and strikes and lockouts can be prohibited pending arbitration and for a specified period after the decision has been made. This is a very large power to rest in the hands of government officials, because it prevents private parties from reaching their own decisions about matters of very great concern to them. We believe that government should use this power very sparingly and only in cases where stoppages would cause clear and immediate harm to important public interests. Except in such rare cases, the freely-made decisions of the parties should rule, even though some inconvenience may result, so as to promote a sense of responsibility for their own actions among unions and managements.

63. In the rare cases in which the government think they must intervene, it is important that they should do so skilfully. On too many occasions in the past, the appointment and operation of industrial tribunals have been seriously delayed, which has led to lack of confidence in the ability and good faith of government officials and in the effectiveness and fairness of the legal process. The remedy lies with the government and primarily with its administration. The I.L.O. Survey Mission recommend that permanent industrial courts be set up, as part of the judicial system, for the purpose of handling industrial tribunal cases speedily and expertly. We do not believe it necessary to establish a completely new institution for the purpose, but agree with the I.L.O. Mission that the working of the present law should be greatly improved. The government must establish and maintain a definite time schedule for determining whether to refer cases to industrial tribunals ; people must be found to serve on tribunals who can give full-time service for the short period needed to complete the work ; after the award, the government must again act with speed. The only justification for government intervention is that these cases are public emergencies, which should be treated with the care and speed which emergencies deserve.

### Works committees

64. The Industrial Disputes Act provides for setting up works committees in industrial establishments to develop collaboration and a spirit of partnership in the workplace by a voluntary process for discussing and reaching agreement on matters of mutual concern to management and labour. Works committee, operated with responsibility and good-will on both sides, can solve at an early stage many difficulties that might later become major issues between the parties, and develop habits of joint co-operation valuable for the efficient operation of the plant to the benefit of all concerned. We recommend that the Central and Provincial Governments should strongly encourage the formation of works committees in important industrial establishments.

## SOCIAL SECURITY

65. In most of the advanced countries of the world, social security schemes are in operation in one form or another, covering such contingencies as unemployment, sickness, maternity, accident, old age, and death. Most of these schemes operate on the basis of compulsory contributions, made by employers and employees, to a fund from which stated benefits are paid. These social insurance schemes have proved to be very useful, and we regard their introduction in Pakistan as only a question of time. The principal obstacles to be overcome are two. First, any social insurance scheme requires an elaborate and complicated system of record-keeping and a precise and rigid system of handling and accounting for funds, both of which will require extensive preparation before they could be successfully started in this country. Second, any system of social insurance is costly, because its purpose is to provide income for people during periods when they would otherwise have little or none, and this means that the community must transfer income to them from others. As the national income grows, it will be easier to provide such transfers of income without causing serious hardships to others.

66. In this country the only risks covered by law are accidents, for which the Workmen's Compensation Act of the Central Government exist, and maternity, covered by the various Maternity Benefit Acts of the provinces and the Centre. These Acts provide inadequate benefits and are not on a social insurance basis. In 1952, two experts provided by the International Labour Organisation surveyed the situation and concluded that social insurance schemes should be introduced by stages and that a comparatively modest beginning should be made by covering sickness, including industrial diseases, accidents, and maternity, for certain classes of workers. The scheme would start in one or tw industrial centres and gradually be extended to others as experience was gained. The cost would be borne entirely by contributions from employers and employees, the Government lending funds to provide an initial working balance. We endorse this approach. We believe the Government should decide to put these schemes into effect as soon as the administrative means can be esbtablished, to appoint a nucleus group of officials, advised by experts, for training staff and working out the many details, and, when all is ready—which might be as soon as a year or two hence—to start operations.

67. In addition to this government-administered scheme, we believe it would be desirable to require by law that the larger employers should establish provident funds, to which workers and management would contribute, and from which payments would be made on retirement or termination of services. In this case also, it would be wise to begin slowly, and to expand the requirement to cover smaller workplaces as experience is gained. These provident funds can be merged with the social security scheme when expanded to cover retirement benefits—but that cannot be for some years yet.

68. Finally, because the social security scheme will have only a limited coverage to begin with, we believe that, as an interim measure, the Workmen's Compensation Act should be amended along the lines of the Bill which has been under the Government's consideration for some years. The principal changes would be to bring more workers within the scope of the Act, to simplify the procedures for the payment of compensation, and to increase the rates of compensation.

## LAOOUR ADMINISTRATION, TRAINING AND RESEARCH

69. Major improvements are already required in the administration of government programmes in the field of labour and employment, both Central and Provincial, and we have recommended a number of expansions and additions, which will create new requirements for effective administration. The I.L.O. Survey Mission found that at present " the major single difficulty lies in the official machinery for labour policy and administration. Few of the senior labour officials are well-versed in modern methods of administration and social and labour affairs. It needs to be realised that labour has become a highly specialised and technical subject, and that an officer who may be adequately equipped for civil administration in general is not necessarily seized of the principles underlying labour legislation and the methods required for its effective application. The Mission found many misfits in administrative positions, in particular in posts where technical skills are required to deal with technical provisions of the legislation. There is, on the other hand, an evident willingness among many officials to learn." (Report of the ILO Labour Survey Mission, p. 158).

70. The Central and Provincial Governments must change their policies on recruitment, pay, status and promotions in order to obtain and hold officers of the quality needed. In addition, extensive training is required to attain higher professional standards of competence and performançe. Here the Central Government should take the lead, organising a continuing and flexible in-service training programme to meet the needs of different types and grades of officials from the Provincial and Central Governments and also, at least

for the time being, from private business. An I.L.O. expert who conducted one such course has made a detailed report which could be used as the basis for this training programme. The importance of these administrative and training measures cannot be overemphasised : without them no programme of development can succeed.

## LABOUR RESEARCH AND STATISTICS

71. One of the most serious deficiencies in the field of labour and employment in our country is the lack of adequate statistical and research services : the present data on employment and un-employment, on wages and earnings and on many other urgent problems are very inadequate. This lack has a paralysing effect on government policy-making, and deprives businessmen, trade unions and others in private life of the information they need to take decisions. In order to overcome this deficiency there should be created in the Ministry of Labour a unit with clear-cut responsibility for developing a co-ordinated programme of labour research and analysis. Such a unit might be called a Directorate of Labour Research and Planning. It would carry out some research itself; some would be carried out by other agencies, such as the Central Statistical Office. The Directorate would be rseponsible for considering the needs for labour statistics, research, and analysis as a whole, and for arranging for the necessary work to be done, within the Ministry, by units of other Ministries, by universities or by other private research organisations. The Directorate should be given strong leader ship and support so that it can develop high professional standards and serve effectively as the central research and analysis staff of the Ministry and the country in the field of labour.

## GRANTS TO VOLUNTARY ORGANISATIONS

72. The problems relating to labour and employment—labour relations and personnel administration, productivity and earnings, and many other aspects—need study and effort by private organisations as well as by the Government. Private research and training activities are particularly desirable, and some private organisations are being formed in the country to carry out this work in health and safety, welfare problems, and industrial relations. We agree with the I.L.O. Survey Mission that such voluntary organisations should be encouraged and that the Government should give them grants in deserving cases. We have included in the Plan funds for such grants, to be disbursed by the Ministry of Labour.

## AGRICULTURAL LABOUR

73. Those who work in agriculture in our country include land owners, tenants, and hired labourers, frequently called landless agricultural labourers. According to the census of 1951, about 90 per cent of those who worked in agriculture were owners or tenants, and about 10 per cent were hired labourers. In addition some who tilled land as owner or tenants also worked part time for others. Sir Malcolm Darling's Report to the Government of Pakistan on Labour Conditions in Agriculture, published in 1955, gave a good summary of the situation and problems of these agricultural workers. The Provincial Governments, who are primarily responsible for agricultural matters, should appoint inter-departmental committees to consider that Report, and their conclusions should be studied by the Central and Provincial Governments jointly.

74. We do not discuss the Darling Report here in detail. A number of matters which it covered are discussed, however, in other chapters of our Report. The Darling Report points out, for example, that the most important means for improving the conditions of life for the cultivators are not the usual kinds of labour legislation, but measures which help them to earn a higher income by producing more and better crops and livestock, and measures to distribute agricultural income better by changing relationships between land-lords

and tenants and opening up more opportunities for tenants to become owners. Some of these measures are discussed in the chapters of this Report dealing with Agriculture, Rural Development, Rural Credit, and Land Reform.

75. There is one point, however, which should be emphasised in the present chapter. Sir Malcolm Darling recommended that those government departments which employ a fairly large number of farm labourers should pay better wages, provide for weekly rest days and annual holidays, and in other ways improve the working conditions of these employees. We endorse this recommendation. In general, we believe that wherever the Government is an employer it should set an example for the rest of the country—an example not of lavish or unwarranted benefits but of fair treatment, decent wages and working conditions, and enlightened management.

## FINANCIAL SUMMARY

76. To finance the programme outlined in this chapter, provisions have been made in the Plan as shown in Table 4 below :

### TABLE 4

*Estimated public Expenditure, labour and employment Services*, 1955—1960

| Purpose | Public expenditure 1955-60 |
|---|---|
| | (Thousand rupees) |
| Improving and expanding employment exchanges ... ... ... ... | 3,045 |
| Improving and expanding factory inspection : | |
| Provincial inspectorates ... ... ... ... ... ... ... | 2,360 |
| Central factory advisory service ... ... ... ... ... ... | 350 |
| Central mines and dock inspectorates ... ... ... ... ... | 140 |
| Establishing labour welfare services ... ... ... ... ... ... | 950 |
| Administering union recognition statute ... ... ... ... ... | 750 |
| Expanding conciliation services ... ... ... ... ... ... | 800 |
| Loans funds for starting social security scheme ... ... ... ... | 1,700 |
| Establishing central labour Research and Planning Unit ... ... ... | 565 |
| Training in labour administration ... ... ... ... ... ... | 375 |
| Grants to voluntary organisations ... ... ... ... ... ... | 200 |
| Total ... ... | 11,235 |

# CHAPTER 28

# HEALTH

## INTRODUCTORY

1. The progress of medical science in its curative as well as preventive aspects has brought high standards of health within human reach. It constitutes an important factor in the happiness of men and women, their efficiency as productive members of the community and the richness of their social and family life. Good health is essential to the efficiency of modern industrial organisation, and to the strength and prosperity of the nation. To achieve it must be among the primary concerns of the community, but as resources are limited at present, it is necessary to establish a system of priorities in this as in other fields.

2. Standards of health in this sub-continent, in former days, were inevitably low. Inadequate nutrition, insanitary conditions, insufficient medical facilities and meagre parental care, all contributed to the prevalence of ill-health, epidemics and a high rate of infant mortality. Traditionally, health and disease were attributed to destiny and even the educated classes were resigned, in a state of conscious helplessness, to the conditions which existed. The resources of the country were small, the administration was concerned principally with law and order and, though an epidemic attracted attention and extraordinary measures, ill-health generally was considered to be beyond succour. Death rates were about double and infant mortality rates were about five times those of developed countries. The available health personnel was grossly inadequate in relation to population and problems. The total resources that could be devoted to health were negligible.

3. With the attainment of independence, and the establishment of Pakistan it was natural that hopes should arise of an improvement in the ways of life of the people. A democratic and responsive national government could not wait for economic conditions to improve before undertaking the amelioration of their social conditions of life. But the new problems confronting the new nation were greater than before independence. A large proportion of the medical personnel had left the country, and even four years after partition, over one half of the posts in government health departments were lying vacant in several of the provinces. The major Medical and Public Health Institutes were in India, and of the five medical store depots on the sub-continent, only one depot, a non-manufacturing one, came to the share of this country. Furthermore, the influx of refugees brought with it major health problems with serious dangers of the spread of communicable diseases.

4. It must be recorded to the credit of the health organisation that the immediate dangers resulting from partition were kept under control and that a fair measure of progress was achieved between 1947 and 1955. For example, nearly 5 million people in towns had a protected water supply by 1951, as compared with only about 3 million in 1947. The country had only one full-fledged medical college at partition, but the number rose to six by 1955. The number of government and registered doctors increased from about 3,500 at partition to about 6,000 in the same period. Similar advances were made in the number of nurses and other personnel. The number of hospital beds in the country increased from less than 15,000 to 23,000. A beginning was made in malaria control, particularly in the former North West Frontier Province. B.C.G. vaccination against tuberculosis had reached 14 million people by 1955. Good progress was made in setting up organisations and facilities to make up for partition losses. A Bureau of Laboratories for the production of vaccines and sera and a B.C.G. laboratory were set up. The country is now producing all the

vaccines and sera required as well as sufficient B.C.G. for the expanded B.C.G. programme. The setting up of a Malaria Control Organisation in the former Sind, East Bengal and Punjab has provided a better base for the expansion of malaria control.

5. How much progress has been made in reducing disease and lowering the death rate is difficult to measure. The statistics are not reliable enough to permit any firm conclusions, but they do suggest that death and infant mortality rates have been declining since independence, while birth rates show little or no change. Two health conferences have been held during this period to discuss the health problems facing the country and recommend steps to meet them. Despite a steady improvement in most fields and spectacular improvements in some, the country still faces tremendous difficulties, and even minimum health standards for the people are far from being assured. An inadequate diet, not so much in amount as in composition, makes millions of our people susceptible to disease. In cities and towns, over-crowding leads, among other things, to a heavy incidence of tuberculosis. Everywhere lack of even rudimentary knowledge about causes and methods of preventing disease multiplies difficulties. The problems of over-crowding and malnutrition can only be solved with the progress of general development, economic and social, including the spread of education, but there is a great deal to be done even in the limited field of medical services and relief.

6. The number of trained people is grossly inadequate, particularly in such categories as nurses, midwives and sanitary inspectors. The standards of more developed countries are unattainable in the near future, but how far the country lags behind is indicated by Table 1, comparing the ratio of medical personnel to population in this country and in the U.K.

### TABLE 1

*Medical personnel, Pakistan and U.K.*

| | Estimated numbers available, December, 1954 | Approximate ratio to population | |
|---|---|---|---|
| | | Pakistan | U.K. |
| Doctors (government and registered) ... ... ... | 6,000 | 1 : 13,500 | 1 : 1,000 |
| Nurses ... ... ... ... ... ... | 1,600 | 1 : 50,700 | 1 : 300 |
| Health visitors ... ... ... ... ... | 200 | 1 : 406,000 | 1 : 4,800 |
| Trained midwives ... ... ... ... ... | 1,040 | 1 : 78,000 | 1 : 600 |

Shortage of trained personnel constitutes the main check to the expansion of the health programme. It would be unwise to allocate funds without trained and experienced staff to make good use of them.

7. Despite the progress made, potable water supply is available to only 6 per cent of the population and even this is generally inadequate in both quantity and quality. Arrangements for disposal of sewage are even less satisfactory, with underground drainage arrangements available to only about 2 per cent of the population. As a result, bowel diseases

are widespread. Malaria takes a heavy toll of life and health ; it incapacitates millions, often at seasons of the year when agricultural work is at its peak. The percentage of deaths among mothers and infants in this country is still among the highest in the world.

## THE DEVELOPMENT PROGRAMME

8. It is reasonable to hope that the development programme as a whole will raise standards of nutrition, housing, sanitation, and health knowledge, and that with this improvement will come better health. The Village AID programme has the improvement of health as one of its major objectives. Village workers will receive some health training, and funds will be available through Village AID and the rural development programme to assist villages in improving health conditions. In urban areas, the community development programme will also serve to acquaint people with good health practices and encourage self-help efforts in the health field.

9. But improved health should be more than a by-product of the development Plan. It is so vital to the country's welfare that there must be a strong and vigorous programme directed to this end. In this programme first priority is given to preventive measures , which would raise standards of health throughout the country at a relatively low cost. Safe water supply and improved sewerage, malaria and tuberculosis control, health education, and maternal and child welfare fall under this category. Curative measures require large resources to help a relatively small number of people. They meet, however, an essential need and though development should give priority to preventive medicine, it is necessary on the curative side to complete schemes now under way, to maintain and improve services and facilities in danger of deteriorating, and to fill the most urgent gaps, such as the provision of services in areas and fields previously neglected. Curative services are costly, so that these essential steps will absorb a relatively large proportion of the resources devoted to health. Because both curative and preventive services depend on trained personnel, substantial resources must be allocated not only to increase the number, but also to improve the quality of available health personnel. Finally, it is necessary that a modest beginning be made in improving and expanding work in several hitherto neglected fields—in particular, school health, health education, nutrition, vital statistics, and medical research.

10. In our study of national health problems, we have encountered a number of important questions on which no clear national policy has been determined. On some of these, such as the question of how fast to control malaria in the country, we have had to make assumptions on the best technical advice we could obtain, in order to prepare the Plan. On other policy questions, such as to what extent health services should be paid for by taxation and to what extent by fees for services, we make no recommendation.

11. In order to clarify some of these policy matters further, we suggest that a conference should be held, bringing together a small group of leading persons in the health field in the country (not all of them medical specialists), and one or two experienced persons from abroad. The considered advice of such a group should be of great benefit to the development of sound national policies. Among the questions which should be considered by such a group are :

(*a*) Should the organisation of a national health service be an aim of our national policy ?

(*b*) Should Pakistan aim at the creation of a second line of medical men such as licentiates or health assistants or rural dispensary officers ? If so, how should their education and training be organised ?

(*c*) What changes in the system of nursing should be introduced in order to attract students from all groups of the community ?

(*d*) What policy should be adopted towards the indigenous and homoeopathic systems of medicine in the country ?

(*e*) Should physical fitness and sports be the responsibility of the health authorities or of some other authority ?

### Water supply and Sewerage

12. On the side of preventive measures, the Plan gives highest priority to the provision of a safe water supply and better sewerage for both urban and rural areas. Much can be accomplished through these measures alone to check the spread of typhoid and cholera, and to diminish the incidence of dysentery and diarrhoea. A total of 203 million rupees for water supply and sewerage has been included in the programme for Housing and Settlements, under the heading "community facilities". Of this amount, 167 million rupees are for urban areas, which require high-cost engineering works. The scheme now being executed for Karachi where water has to be brought from long distances over difficult terrain, is particularly expensive. The provision of pure water for rural areas is equally important but the wells required there are much less costly, especially in East Pakistan. Much of the work on rural wells can be done by volunteer labour, and the problem is primarily one of organisation, both in drilling the wells and in maintaining them. In the programmes for Housing and Settlements and for Village AID we recommend government contributions towards improved rural water supplies in East Pakistan totalling 36·7 million rupees during the Plan period.

### Tuberculosis

13. Tuberculosis is a menace throughout the country. It is roughly estimated that there are about 750,000 open cases and with increased urbanisation and crowding this disease threatens to assume alarming proportions. Mass vaccination with B. C. G. vaccine is relatively cheap and can give protection at least to a part of the population. We have, therefore, recommended that a programme for nation-wide B. C. G. coverage be carried out during the Plan period, at an estimated cost of 4·3 million rupees. An important aspect of a tuberculosis control campaign is the isolation and treatment of existing cases. This requires the establishment of dispensaries for diagnosis, of hospitals and sanatoria for treatment and the training of doctors, nurses and technicians. Like all curative work, it is expensive. The treatment of an average case is estimated to cost Rs. 3,000. Because of limited resources, it is possible during the Plan period to provide only for the completion and improvement of existing treatment facilities and the establishment of a few new ones in areas where none exist now, to keep the disease under some measure of control. We have included 26 million rupees in the Plan for this purpose; this will provide approximately 1,500 new beds, against the existing number of 2,000. Tuberculosis is essentially a social and economic problem, rather than a technical health problem. It will be brought under effective control only when substantial improvements take place in nutrition, housing, preventive medicine, and general economic conditions, which will need more than one five-year Plan. Until that stage is reached, the country must continue to do the maximum possible within its financial, technical and organisational resources to combat the effects of unsatisfactory living conditions.

### Malaria

14. Malaria is susceptible to direct control by public health measures at a relatively low cost. Known techniques, involving mainly the systematic spraying of D. D. T. can control and ultimately eradicate this disease. The major problem is one of organisation and drive. A co-ordinated campaign needs to be carefully planned and administered.

If large areas are to be sprayed, serious problems of supplying the materials and supervising the work will have to be solved. On the other hand, such a campaign could eliminate malaria as a serious health menace ; the benefits in terms of general health standards would be substantial. We recommend a nation-wide malaria control programme during the Plan period estimated to cost 53 million rupees—30 million rupees for East Pakistan and 23 million rupees for West Pakistan. Considerations of money expenditure should not be allowed to obstruct this programme, especially in East Pakistan, where the problem of malaria remains acute. Indeed the programme should be expanded in that province, whenever possible. The help of the Village AID and urban community development organisations should be sought and used to the maximum. The success of the programme will depend on the skill and competence of technicians and administrators, who must be given adequate powers for accomplishing the tasks assigned to them. Above all, the staff responsible for implementing the programme must be inspired by a sense of mission.

### Water-borne diseases

15. The major means for controlling water-borne diseases—the improvement of water supply and better sewerage facilities—are discussed in the chapter on Housing and Settlements. It is important that those cases which do occur, especially of cholera and typhoid, are isolated and treated to prevent a spread of the infection. Most areas, particularly in East Pakistan, are inadequately served by infectious disease hospitals. A provision of 3 million rupees has been made to provide 380 beds in infectious disease hospitals for areas where none exist now.

### Training of medical personnel

16. We have given high priority to the training of health personnel, to provide a larger number of doctors, nurses and other trained staff needed for health institutions and services, both private and public. It has been estimated that by the end of 1954 there were about 6,000 doctors registered with Medical Councils. Many of the doctors are relatively young, so that losses through retirement and death should be low for many years. At present, about 500 doctors graduate each year. During the Plan period, colleges at Peshawar, Hyderabad and Multan will produce their first medical graduates and the medical school at Chittagong will be made a college. The number of doctors graduating each year is expected to rise to 600 during the Plan period, and still further in later years. The total number of doctors will increase to about seventy-five per cent more than the number in 1953, and this will go far to relieve the present shortage. Provision is made in the Plan to complete the colleges at Multan and Peshawar, to develop those at Hyderabad and Chittagong, and to raise two medical schools in East Pakistan to college level soon after the Plan period.

17. Even more important than increasing the number of doctors is the improvement of medical education. It has been the nearly unanimous view of health conferences and medical leaders—though not apparently of the Provincial Governments—that this requires a uniform system of training doctors through a full college education. This would require medical schools either to be upgraded to college level as rapidly as possible or to be discontinued. It would be difficult to give effect to this policy immediately, when the country must produce as many doctors as possible, especially for the rural areas. By the end of the Plan period, this problem should be more manageable.

18. We have also provided for the improvement of Dacca Medical College and the Institute of Basic Sciences at Karachi, which will prepare doctors to teach basic subjects in medical colleges ; for the Institute of Hygiene and Public Health at Lahore to expand

its advanced training and research activities in public health ; for special post-graduate training in clinical subjects ; for training in radiology, and for expansion of technical training abroad. It is also proposed to strengthen medical research in the country.

19. The number of nurses is even more inadequate than the number of doctors. In this field, the initial problem is to attract sufficient candidates to fill vacancies in the existing training institutions and to induce them to stay in the profession during and after their training. In 1955, there were 13 nurses' training centres in the country, with about 700 seats of which less than 400 were filled ; only in the Lahore hospitals were the training centres full. Even worse, nearly half the student nurses left during the course of training and of those remaining only one-third or about 65 qualified each year. The unsatisfactory reponse to this profession cannot be due primarily to poor pay, since nurses receive stipends of Rs. 40 to 60 per month plus liberal allowances, during training, and a salary scale of Rs. 125 to 225 per month plus allowances, after the completion of training. There seem to be two major reasons for this situation : the limited number of educated girls available, and misgivings in the minds of some parents about the social conditions in which nurses live. The first problem can be solved only as women's education becomes more widespread. Funds have, however, been included in the Plan to provide student nurses with better accommodation and equipment, more recreational facilities, and better diet. The minimum aim must be to fill all available seats in existing training institutions and to minimise the number who leave before completing the course. This might produce about 200 qualified nurses a year, still inadequate for the country's needs, and general expansion of training facilities must be undertaken once existing training capacity is fully employed. At present, the shortage of nurses is particularly severe in East Pakistan with less than 170 seats of the country's total of 700 available for training. The establishment of a new nurses' training college in Dacca has, therefore, been recommended. The basic question is whether nurses' training should be given in special institutions or under the administrative supervision of hospitals. Special institutions might give added prestige to the nursing profession and make possible other changes that would attract more applicants. In any case, more qualified teachers are needed for the nurses' training institutions. For this purpose a postgraduate nursing college is included in the Plan.

20. The number of trained midwives in the country is unknown, but is roughly estimated at 1,000 to 1,100. Training for this profession is given by maternity hospitals, or the maternity sections of general hospitals, either to qualified nurses or to girls with four to six years of general schooling. About 140 seats for such training are available, but the number of nurses who qualify each year is not known. Of the 140 seats, only 10 are in East Pakistan; this brings out the need for additional facilities in this area. We have provided for additional training institutions in East Pakistan and for existing facilities to be improved in both Wings.

21. Sanitary inspectors perform various technical functions in the public health field. It is estimated that some 300 to 400 are at work, most of whom were trained at the two centres existing for this purpose at Lahore and Dacca. During the Plan period, a large number of public health technicians will be required for Village AID, tuberculosis and malaria control and maternity and child health schemes. It may be desirable, by modifying the training now given, to produce a substantial number of multi-purpose public health technicians who can be used in most of these programmes. Because of the shortage of qualified teaching staff, it may be desirable to induce staff of existing medical colleges to undertake these teaching duties, by providing special remuneration for this purpose. Provision has been made in the Plan for the opening of four more training centres—two in East and two in West Pakistan—and for stipends to aid the trainees, to train 1,500 sanitary inspectors or equivalent personnel.

22. The number of compounders in the country is not known, but we estimate that considerably more than 5,000 are required. Existing training facilities are not standardised and in many cases are completely unsatisfatory. In some areas a practical, but superficial, six-month training programme is given in dispensaries. There are grave dangers in using unqualified or insufficiently trained compounders. We recommend that four additional training centres should be established for compounders, two in each Wing. The curriculum and period of training should be uniform in all the training centres. The establishment of entirely new centres may not be required where it is possible to expand and improve existing training facilities.

23. We estimate that there may be some 200 to 300 health visitors in the country. Some of these are qualified nurses who have received an additional 9 months' training in public health, and others are matriculates with 27 months of health training. Three training centres are now functioning, each turning out 30 health visitors per year, and a fourth will be in full operation in 1956. By 1960, 600 additional health visitors will be available. The profession suffers from the same handicaps as nursing ; teaching staff is inadequate and not enough suitable girls are attracted to it. Because only one of the four existing training centres is in East Pakistan, we recommend that an additional centre should be started in that province during the later years of the Plan period.

**Maternity and child health services**

24. Maternity and child health services involve both preventive and curative work. The need in this field is great. Infant mortality rate is estimated at 110—130 per thousand live births and the number of mothers who die in child-birth may be 440 to 680 per one hundred thousand births. This is about 5 times the rate in more developed countries ; the solution depends, in large part, on improved nutrition, better housing, and increased knowledge of health principles. Much progress can be made directly through the use of maternity centres to provide assistance and information. There are about 140 of these centres in the country—90 in the former Punjab, 22 in East Pakistan and 16 in the former North West Frontier Province, but none at all in several other large areas. Some relief is provided by special facilities for maternity cases in most general hospitals and a few maternity hospitals. During the Plan period, provision can be made for expanding these services in areas now inadequately served and for improvement of some of the existing institutions, but there are insufficient doctors, nurses, health visitors and other personnel required to staff a larger programme. The funds recommended will provide for about 36 maternity and child health centres in Hyderabad and Khairpur Division, and for improved and expanded services elsewhere in West Pakistan, to provide services for 1·6 million people mainly in backward areas. Twenty maternity centres in rural areas will be opened in East, Pakistan, providing services for 2 million people.

**Hospitals and dispensaries**

25. There are 453 hospitals and roughly 2,000 dispensaries in the country, with about 23,000 beds. Facilities in many of these are extremely limited, and some dispensary buildings have seriously deteriorated. First priority must be given to the improvement and expansion of existing hospitals and dispensaries, and new ones are recommended for mainly rural areas with no existing facilities.

26. For East Pakistan, we recommend the expansion of sub-divisional and district hospitals, and the improvement of surgical and X-ray facilities. East Pakistan at present has no mental hospital and is forced to send mental patients to India or to Lahore—an undesirable and costly procedure. Funds have, therefore, been provided in the Plan for the completion of one relatively small mental hospital. Provision has also been made for

a Department of Skin Diseases, the improvement of the Dacca and Chittagong medical college hospitals, the existing leper asylums, and the Medical Store Depot. The effect of the hospital programme will be to raise capacity by nearly 4,000 beds. The East Pakistan government have proposed a large scheme for rural dispensaries, and we have recommended a programme estimated to cost 30 million rupees, mostly for improving the services of existing dispensaries, and providing more than 1,500 new beds in rural areas.

27. In West Pakistan, a substantial programme for the construction and improvement of hospitals is already under way ; priority should be given in the Plan period to its completion, though expenditure should be restricted to what is essential. Substantial funds are required to complete district headquarters hospitals in the former Punjab and Sind. In addition, we propose the improvement and expansion of the two womens' hospitals in Lahore, and of district and tehsil hospitals in the fomer Bahawalpur, Sind, North West Frontier Province and Baluchistan. We recommend new hospitals only for Thatta, the former Baluchistan States Union and the Dera Ghazi Khan District. Provision has been made in the Plan for the improvement and expansion of dispensaries, and for new dispensaries only for less-developed areas of the former Bahawalpur and Baluchistan States Union. The scope of the programme is indicated by the fact that over 3,500 new hospital beds will be added in West Pakistan, and dispensary facilities provided for more than 800,000 people who are now without them. The improvement of existing facilities cannot be expressed in similar terms, but is at least as important.

28. The programme for curative facilities which we have recommended will require substantial scarce resources in funds, foreign exchange, personnel and building materials. The funds proposed will be inadequate to carry out the programme unless costs, particularly of buildings, are kept to a minimum. The help of the Village AID programme should be enlisted to obtain a maximum contribution from local communities towards the construction and improvement of local dispensaries. In the chapter on Housing and Settlements we have recommended the preparation of plans for standard low-cost buildings of various types. New hospitals and dispensaries should be built according to these plans with minimum alterations to meet local conditions.

### School health services

29. We recommend development in some important fields which have hitherto been largely neglected. School health services have been started only on a very small scale in East Pakistan, Karachi and the former Punjab ; they can and should be expanded gradually. We need to experiment in setting up school health clinics, in order to discover how effective service can be rendered at a cost low enough to permit its eventual extension to all school children. The programme can be expanded more rapidly if, for instance, the clinics can be accommodated in existing school buildings. West Pakistan is planning to try this approach, but the East Pakistan authorities think that separate buildings are required. Different methods should be tried for bringing health services to a large number of widely separated schools, especially in rural areas. We provide a small initial provision of 2·5 million rupees for the expansion of school health services during the Plan period.

### Health education

30. An essential step towards the improvement of health is to spread knowledge about the causes of disease and measures for its prevention. This requires the co-operation of schools and the Village AID organisation to reach many thousands of people : it would be prohibitively expensive to set up a separate organisation for this purpose. A special health organisation is required, however, to provide the necessary technical information and

assistance to those who will deal directly with people. We recommend that three small health education bureaus should be set up, one in each Wing and one at the Centre. While these bureaus may carry out some direct health propaganda, their primary contribution would be to increase the effectiveness of health education in schools, in the Village AID programme and urban community development projects.

### Nutrition and vital statistics

31. It is necessary to know more about nutritional deficiencies in people's diet and the nutritional properties of various local foods for guiding health education and for planning health services. Reliable vital statistics and information about nutrition can be of great value for this work. We recommend the establishment of small sections in each Wing and at the Centre to begin research on nutrition and to improve the collection and use of the necessary statistics.

### Health administration

32. The combination of preventive and curative services under one administration, a live issue in the past, is now largely accomplished ; the Central Government and West Pakistan have completed this amalgamation, and East Pakistan has done so in five districts. But the role which local bodies can play in carrying out the health programme remains an unresolved issue. Most local dispensaries are still run by district boards and other local bodies, but there is a consistent move towards transferring control to the Provincial Government, on the ground that local dispensaries suffer from insufficiency of funds, from political interference, and from general maladministration. We consider that local bodies must be strengthened and given greater authority, even if this results in some temporary loss of efficiency. Responsible local government can be encouraged only by giving local bodies important duties and the means for discharging them. In our opinion, the policy should be to make local bodies increasingly responsible for local affairs. In order to widen career prospects for local medical officers and to avoid local political pressures, it may be advisable to reserve the powers of appointment, transfer, and promotion of staff to the Provincial Government, but the local bodies should continue to control and administer the dispensaries and be consulted when staff is transferred.

## SUMMARY

33. The health programme we propose for the Plan period is estimated to cost some 287 million rupees, excluding direct contributions by local bodies. The composition of the programme is shown in Table 2, the annual division between the Provinces and the Centre in Table 3, and the foreign exchange component in Table 4.

TABLE 2

*Estimated public expenditure on health programme*, 1955—60

| | (Million rupees) | |
|---|---|---|
| Tuberculosis Control | | |
| B.C.G. ... ... ... ... ... ... ... | 4·3 | |
| Hospitals, clinics, sanatoria ... ... ... ... ... | 26·0 | |
| Total ... ... | | 30·3 |

### TABLE 2—*contd.*

| | | |
|---|---|---|
| Malaria control | | 53·0 |
| Infectious disease hospitals | | 4·2 |
| Maternity and child health | | 12·2 |
| Medical and technical education : | | |
| Medical colleges and schools | 58·6 | |
| Higher training for doctors and research | 11·1 | |
| Nurses training | 11·5 | |
| Other training | 6·4 | |
| Total | | 87·6 |
| Hospitals, dispensaries and stores : | | |
| Hospitals under construction | 14·0 | |
| Improvement and expansion of hospitals | 31·2 | |
| New hospitals | 10·9 | |
| Establishment, improvement and extensions of dispensaries | 37·1 | |
| Medical stores | 1·0 | |
| Total | | 94·2 |
| School health, studies of nutrition, health education and statistics | | 5·7 |
| Grand Total | | 287·2 |

### TABLE 3

*Division of public expenditure on health programme between governments, 1955—60*

(Million rupees)

| Unit | 1955-56 | 1956-57 | 1957-58 | 1958-59 | 1959-60 | Total |
|---|---|---|---|---|---|---|
| East Pakistan | 10·8 | 25·7 | 30·0 | 34·7 | 39·5 | 140·7 |
| West Pakistan | 13·3 | 29·7 | 34·1 | 31·3 | 31·3 | 139·7 |
| Centre | 1·2 | 1·4 | 1·4 | 1.4 | 1·4 | 6·8 |
| Total | 25·3 | 56·8 | 65·5 | 67·4 | 72·2 | 287·2 |

## TABLE 4

*Division of public expenditure on health programme between domestic payments and foreign exchange,* 1955—60

(Million rupees)

| Currency | | 1955-56 | 1956-57 | 1957-58 | 1958-59 | 1959-60 | Total |
|---|---|---|---|---|---|---|---|
| Domestic payments | ... | 20·7 | 46·3 | 53·1 | 55·4 | 59·7 | 235·2 |
| Foreign exchange | ... | 4·6 | 10·5 | 12·4 | 12·0 | 12·5 | 52·0 |
| Total | ... | 25·3 | 56·8 | 65·5 | 67·4 | 72·2 | 287·2 |

# CHAPTER 29

# SOCIAL WELFARE

## INTRODUCTORY

1. The basic idea underlying Social Welfare is the importance of human relationships in the life of the individual and the society. In framing a development plan the social consequences of its various aspects are ultimately as important as the economic consequences. In other chapters of this report we have stressed a maximum increase in national income as a primary goal of development. All sections of the Plan have implications for the social aspects of the country. The development of Village AID, education, health, housing and settlements will have particularly profound effects on them. These are considered in the relevant chapters. Here we are concerned both with the general social research and social planning which are required to take account of the social aspects of development and with the specific social welfare schemes and policies to alleviate social distress and improve social health.

2. If social welfare in its broad sense is ignored in economic development and industrialisation, because actions are evaluated entirely in terms of economic criteria, the result is short-term and longer-term social loss. For instance, low grade housing provided by employers for their workers flocking into towns from the countryside solves the immediate needs of industrial development, but leaves a legacy of urban slums, resulting in physical ill-health, mental squalor, cultural decline and human degradation, which subsequently becomes very costly in direct economic terms as well as in terms of human wretchedness.

3. In philosophic and religious terms, these evils are the price which is paid where material achievement is treated as an end in itself instead of as a dangerous but valuable means for the expanding expression of non-material values through the lives of all men living together in the same society. Where short-term material considerations are dominant, society tends to crumble for want of an appreciation of men's need for one another in a spiritual relationship. On the other hand, where material progress is rejected as a threat to the traditional religious and social patterns, ignorance and poverty are exalted. All this is clear from the history of social change in the West.

4. Social welfare began as organised philanthropy to make good the social ravages of the tremendous economic changes in other developing societies, which in total did so much to raise the material standard of living for all. But also looking backwards, we can see that if the ideas of social welfare had been better understood when big economic changes began and if these ideas had received effective expression in the common life, the subsequent personal and social cost would have been much less. The costly squalor of industrial towns could have been avoided, the very costly decline of health in the town worker as compared with the agriculturist could have been avoided, mass ignorance and degradation could have been avoided and mentally healthy town life could have been built if, when rapid economic changes were taking place, it had been possible to take into account what is now known about the importance of human relationships, and if basic action had been taken which would have raised the social standard of living of the working class right from the start.

5. Economic development also has other less tangible effects, which affect social welfare. In a traditional and fairly static society, the frame-work of human relationships is so unquestioned that there is relatively little emotional tension arising from uncertainty about how to take personal decisions. When there is no possibility of industrial employment for wages, nobody in the village family worries about family solidarity. But in a society where economic conditions precipitate changing modes of life, where the lure of

money wages competes with the prospect of subsistence agriculture, where schooling gives one generation accomplishments that the previous generations lack, where widening personal experience leads to doubts about traditionally accepted patterns of behaviour, in such a society, well-rooted human relationships are continually challenged by alternative patterns arising from the opportunity that the individual now has to choose how he lives. Every time he chooses untraditionally, a new tension is created—both within himself and within other people. These tensions may become so great that the threads which bind people into a society may snap. Everybody begins to please himself with short-run satisfactions which turn out to be long-term miseries. If this happens on a big scale, the fabric of society dissolves, and there is social anarchy—which means ill-health, crime and violence, sexual, alcoholic and drug disorder, and widespread, deep seated nervous fear. Social anarchy easily becomes the seed-bed of political extremism. Where men and women are so demoralised that they have little to lose, the unscrupulous political leader finds it easy to mobilise mass movements based on hatred and resentment. All of this may yet go with rapid economic development as many incentives and technological know-how combine to provide great material returns.

6. Once the processes of industrial and agricultural revolution set in, nothing can stop these tensions from arising. But an intelligent application of the positive and preventive principles of social welfare at an early stage of change may enable the tensions to be borne and resolved, so that people discover that they can face the choices of an expanding economy without losing what is central to their system of values. But if this is to happen, the masses faced with change must be supported, undoubtedly but effectively, by fellow-citizens who make it their special business to support them in their perplexities. In short, the ideas of social welfare, as a constructive process concerned with the preservation, creation and development of strong human relationships through economic change, are essential if planning is to contribute to social as well as to economic well-being.

7. In countries where the ideas of social welfare are at work, their expression takes two main forms. Historically, rescue and curative services have come first ; that is to say, services for the relief of distress when it is already present. Such services included hospitals, orphanages and other ways of helping the handicapped and destitute. In contemporary conditions, such social welfare services are represented by organised care for neglected children, by support for the destitute, for the blind, the deaf, the crippled and the mentally afflicted, by the reformatory treatment of delinquents, and by medical social work. It is these services that leap to the popular mind whenever the term social welfare is mentioned. But the most important concepts of social welfare in under-developed areas are not of this kind. They are rather those concerned in a large-scale way with the positive growth of social health and with preventive measures designed to cut off misery at its roots. In the related field of physical health, it is on the work of public health departments rather than on hospitals that we rely for our general protection. In the field of social welfare, it is through good housing policy, through adolescent recreation programmes, through employment advisory services and so on that healthy living can be promoted. This positive and preventive aspect of social welfare has only recently grown to full stature. It is less spectacular than the institutional treatment of unfortunate individuals, but much more important, especially in poor countries where limited resources must be used for major strategic policies.

## DEVELOPMENT SINCE INDEPENDENCE

8. Pakistan has had a large number of problems in the field of social welfare. The most important of them all, both in magnitude and urgency, resulted from the mass migrations of population at the time of partition. Millions of refugees, many of them completely destitute, entered the country and required assistance in meeting their elementary

needs of shelter, food and clothing. Their rehabilitation in the economy which had been seriously disorganised and disrupted and their adjustment to the new social and economic environment were amongst the most formidable problems that could face any country. Their very size and nature made it inevitable that the Government should assume major responsibility for making adequate provision for the refugees, for revitalising private social welfare organisations and for facilitating the establishment of new organisations.

9. The most important change in welfare work, has, however, been not so much in the amount of funds provided, but in the change in approach. The original spontaneous out-pouring of private and government assistance, whether in the form of aid to refugees or other forms, made an essential contribution in the first years of independence. But it could not provide the sustained and planned assistance required for the solution of long-range problems of social adjustment. It was necessary to couple enthusiasm with organisation, mass participation with trained guidance, and enthusiasm with sustained interest. An essential step in this direction was the development of a professional group of social workers.

10. A small nucleus of such a group existed in the country in the labour welfare officers. With the help of the United Nations and other agencies, steps were taken in 1952 to train social welfare workers. By the beginning of the Plan period, 124 workers had been trained and a post-graduate course for more advanced work had been started at the University of the Punjab. Several professional organisations had been formed in the social work field.

11. The Village AID programme, discussed in a separate chapter, was started. The method of this programme is community development. It would lay special emphasis on increased production with a view to improving the economic condition of rural communities, but in essence and purpose, it is a social welfare programme. A modest programme of community development had also been started in the urban areas before the beginning of the Plan period. The process of combining the approach of the trained social worker with the enthusiasm of the volunteer had, however, not gone far. It had made the greatest progress in a few schemes in urban community development, medical social work, and delinquency. Some progress was also made in such fields as child and family welfare, care of the handicapped, including the deaf and dumb and the blind, care of orphans and the destitute, multi-purpose welfare work, youth work, and assistance to refugees. This provides a base for greater progress in the Plan period.

## SOCIAL PLANNING, SOCIAL RESEARCH AND SOCIAL WORK

12. Having stated the general principles which should underline social planning and having indicated in general the difference between a positive approach to social well-being and the curative welfare services that deal with human disaster when it actually occurs, we must consider the forms in which these considerations may find expression in Pakistan in view of the past progress in these fields. Provision must be made for development in three different but related spheres—social planning, social research and social work.

### Social Planning

13. In a complex modern society, large development operations are carried out, both by government and by private agencies, while thousands of individuals are pursuing private development projects on a small scale. Relatively little of this activity springs from a primary concern for the social welfare of any wide section of the population ; most of it is motivated in other ways. Yet any or all of the developments may have far-reaching repercussions on the social life of a whole people, for good or ill. In such a society, healthy social life can never develop if every public or private initiative has to be scrutinised

by social planners. In the last resort, good social achievement depends on a widespread and sensible awareness of the consequences of their specialist actions by all concerned, whether engineers or educationists, town-planners or industrialists, medical specialists or commercial magnates, agriculturists or amusement organisers, municipalities or public corporations, civil servants or elected representatives. Where this awareness of likely social consequences exists, specialists will look ahead and give their particular work the necessary slants and modifications for preserving the public social interest.

14. Such awareness comes in two ways, partly by learning from mistakes, and partly by the educational influence of a lead from the top including social thinkers and writers. The stronger the latter, the less painful and slow is the former process. We believe it of great importance that the functions of social planning in this country should be included at a very high level in the assignment of any continuing planning authority. All major policy discussions and decisions should include the contribution of some who are aware of social consequences and who have enough imagination to see how rising material production can be distributed so as to improve the common non-material good. We include proposals for this kind of social planning in the section of this chapter which outlines administrative proposals. The point we wish to make here is that social welfare activity at the field level will lack " teeth " in the absence of effective social thinking at the strategic level. In the absence of strategic social thinking, social welfare workers will be simply a worthy but quite unimportant and uninfluential group of " do-gooders ".

### Social research

15. In social affairs it is easy and dangerous to take emotional decisions, positive or negative, which may satisfy the benefactors, but may go no way to meet the real trouble of those in distress. Doctors know well enough that to relieve pain is not, in itself, either to understand or to remove the causes of pain, and that a doctor guided by his emotions, unsupported by his own or his colleagues' researches, would be a poor medical practitioner. In a comparable way, good social planning and good social welfare programmes must be based on solid field research into the social changes and strains of the country and its widely differing areas.

16. Among the questions of major importance about which very little is known are the following :

How does the extended family, typical of rural areas of the country, lose its hold on men who go into industrial work away from home ? What happens to the families, what happens to the men ?

To what extent is the extended family system real in urban areas and what is the general pattern of family life in older and newer towns ?

What are the major problems faced by rural workers, used very largely to a subsistence economy, who come to work for cash wages in towns ?

Is there a difference in the cultural relationships between men and women within the family in towns as compared with villages ? What, in any event, is the content of " family life " in a Muslim country, where the functions of men and women are sharply differentiated ?

What is the effect of urban life on nutritional standards ?

What effect does urban transport or the lack of it have on the health, recreation and family life of wokers, adolescents and children ?

Whence are industrial workers recruited from and why do they go into industry, and to what extent are their hopes realised or disappointed ?

What is the extent and nature of urban poverty ?

What are the merits and weaknesses of various kinds of housing provisions ?

What are the facts about delinquency, child-neglect, the extent of orphancy, the need of widows' homes, the extent of alcoholic and irregular sex activity ?

What are the social factors which influence the attitude of parents to schools or the use of health clinics ?

Are there diagnosable tensions between locals and refugees and if so, to what extent and where do they operate ?

What are the social factors behind hospitalisation ?

What is the extent of voluntary philanthropic activity, both financial and in direct services ?

These are only some of the questions that need answers if proper attention is to be given to social needs. We, therefore, propose that arrangements should be made for continuous field research. Our proposals are elaborated in the section on Administration.

### Social work

17. Social work at the field level itself falls into the two categories of positive or preventive and remedial. The distinction is not absolute, and it is often only through remedial efforts that understanding grows of fundamental causes and remedies. In general, we give priority to the development of positive and preventive services, but remedial services are also important, both in their own right and as the laboratories where fundamental observations and principles are worked out. The following list of fields for social work is arranged in a very rough order of priority.

### Village AID

18. This country is, and is likely to remain, primarily agricultural and, it is right that the major part of the resources available for social development and welfare should go to the Village AID programme discussed at length in a separate chapter. But this should not be thought of as complete in itself. In the first place, the spirit and purpose of Village AID at its best is exactly what is required for urban community development, which has so far gathered little momentum. Village AID stresses local responsibility, personal and community self-help, and the value of the dedicated but detached servant of the community. It is to be hoped that those associated with it will be willing to put their experience at the disposal of their colleagues in urban work. This is particularly important because in new urban centres and industrial towns most people will be countrymen coming to live in towns for the first time. To help them, urban community development workers should have some understanding of the rural background, which might be best got some by arranging for short training courses at Village AID training centres. On the other hand, in facing the social problems of villages, and particulary in gaining insight into the methods of dealing with social casualties and misfits, Village AID workers, especially those with a good deal of field experience, might well benefit by contact with the curative side of social welfare training. The social education workers of the Village AID programme, in particular, might gain much from close associations with professional social workers. It is especially important that they should understand how to encourage the growth of voluntary organisations. In sort all those professionally engaged in the development of a good community should share whatever experience is of mutual value.

**Urban community development**

19. Though less extensive than the social problems of the villages, the human problems of Pakistan's town areas are going to be the most concentrated and explosive social issues which this country will have to handle. It is in the industrial areas that the regulative authority of tradition will be weakest, the ties of family responsibility least compelling, the opportunity for organised discontent greatest. If we hope for the peaceful and dignified growth of industrial life, it is necessary to give purposeful thought to the human relationships as well to the physical conditions of our towns.

20. In particular terms, this means that town dwellers must be helped to achieve an active sense of neighbourliness so that they perceive that there is a positive value in co-operating with one another and with the Government for the common good, in recreation and education as well as in health and physical protection. Some people think that labour management is the answer to this situation, but this is not so : good labour management is concerned with conditions in factories ; outside working hours the employee wants to be free from the attention of the boss, however well meaning. And in any event the majority of town dwellers are not and never will be working in large concerns with labour officers.

21. It is in the face of conditions of this kind that the conception of urban community development has slowly emerged. Its essence is that, with good leadership, what is an urban agglomeration of disordered human dust can become a positive human society, in which men and women and children discover themselves as positive persons with achievable and satisfying social relationships. They become aware that by working together they can raise the health provision of the neighbourhood, improve the streets, build schools, get play grounds for the children, ask probing questions about local government services, start reading rooms, and provide care for the handicapped. The visible achievements are valuable in themselves. What is even more valuable is the stabilising experience which the participants unconsciously acquire as they learn to co-operate. This is the process by which a working democracy is built up—the discovery that by discussion and agreement and the assumption of widespread responsibility on a manageable and understandable scale, good things get done.

22. This process was put to a test as one of the best methods of social development in the urban areas of the country. An urban slum area in Karachi-Lyari—with rigid patterns of society undergoing a change due to the influx of refugees from India and the processes of urbanisation and industrialisation, was chosen for ademonstrational-cum-experimental project. Leadership was provided by the Pakistan Organisers (officials of the Social Welfare Project organised by the Ministry of Works) and trainees of the in-service training course. It proved successful in " helping the community to help themselves for thier own socio-economic development ". Keeping themselves in the background the workers stimulated and guided the people to form a responsible " Council " to assess their social needs and resources in terms of time, money and energy. The project started with the social workers, approaching individuals and groups of people, in the community. Those who evinced interest and were willing to participate in the programme were later called to weekly group meetings. In these meetings social problems and their possible remedies were discussed and activities organised to meet the problems. Education, recreation and health problems were taken up first. In due course, the field of activity was extended to home and public sanitation and the provision of other social amenities. At present the Lyari Council raises adequate funds from within the community as well as from resources outside and gives financial aid to six literacy centres, ladies industrial-cum-literacy homes, area committees within the community to organise recreational facilities like football and cricket clubs and other games. It has been able to create better mutual understanding and development of human relationships between

social groups in the community. Two trained social workers, one man and one woman, have been provided to the Lyari Council by the Central Government. With their help the Council has succeeded in assisting the existing groups in Lyari to come closer to one another, in encouraging the people of the community to start new groups to meet existing problems, in training people to be more conscious of their needs and resources, in helping them to co-operate in service to the community as well as to individuals, and in acting as a link between the people and the government agencies.

23. The key-note of community development is self-help. It is not easy work, but it can be done, and in our view, after Village AID, it is the most important single contribution to the social welfare of the country and in some ways even more urgent because of the explosive situation in restless urban areas. We recommend that during the Plan period, seventy urban development projects should be started, requiring about 280 professional workers.

## New housing development and refugee areas

24. The building of new houses does not solve the housing problem. The problem before those who produce new housing areas is how to make them homes. The problem is real and urgent in this country. Along with some good housing schemes go some failures. The social conditions of some satellite towns, for example, are so unattractive that in spite of the severe housing shortage people will not accept tenancies. This is a measure of the importance of social forethought. Elsewhere the same mistakes are being made as have been made in Western countries : houses are built and occupied before there is any reasonable prospect of shops, markets, post offices, police stations, schools, mosques, or transport. This leads to bitterness, frustration and irresponsibility in the new residents.

25. Social planning and social workers can help in two ways. First of all, at the design stage all plans should be subject to careful review by men and women trained to think socially. Moreover, all schemes ought to be assessed after a year or two for unexpected good or weak social welfare factors, and the lessons should be applied elsewhere. Secondly, where residents have begun to move in, a social worker, or preferably a small team, ought to be on hand to explain sympathetically the new conditions of life, to help the residents to adjust to unfamiliar conditions (such as water sanitation or the use of a garden), to stimulate the sense of positive mutual relationships between neighbours, and to promote self-help. We, therefore, suggest that in all new housing schemes at least one trained social worker should be appointed before any houses are occupied, while for all sizeable housing schemes a community development team should be appointed for a reasonably long period.

26. In addition, there are two special branches of housing which demand even more thought. These are housing for refugees and housing for men who come to work in industry without families.

27. Areas with a heavy concentration of refugees face special problems of permanent adjustment and of encouraging people to self-help. Many of their inhabitants will tend to suffer from the special emotional insecurities common to refugees the world over, and such areas can become hot-beds of discontent, social ill-health and disaffection. Nearly all areas with a heavy concentration of refugees will also be newly built, principally as satellite towns. They will therefore combine the problems of new housing areas and of refugees. In these circumstances, it is particularly important that there should be not only community development staff working at the group level, but also a case worker

or workers who can give special help to the most disturbed families until they have discovered ways of helping themselves to become integrated citizens. If this is not done, the specially disgruntled families may well infect those who have got to the point of being able, with group help, to settle down. We, therefore, propose that special priority should be given to areas with a heavy refugee concentration, and that about 20 community development projects should be launched in those areas as part of the regular programme. In addition, about five projects should be executed in areas of new houses where there may be refugees in large numbers.

28. A survey of the effects of industrial change shows that something over 50 per cent of the industrial workers in East Pakistan are not living with their families. About half of these are single men, and the remaining half are married men whose famlies are still living in villages. This creates four problems, all of which need appropriate action, though further investigation is required to determine what action is appropriate. These problems are :

(*a*) Helping the men to organise their living arrangements ;

(*b*) helping them in leisure time ;

(*c*) providing a link with the village families ; and

(*d*) relieving the tension between town and country life.

These problems are discussed below:—

29. Living arrangements for men without families need careful planning. Left to themselves, conditions will be squalid in the extreme. In particular, hygiene conditions and food will tend to deteriorate in the absence of family care. *This will have repercussions on the industrial efficiency of workers as well as tend to produce apathy or unhealthy recreations.* It is not easy to see what positive policy should be adopted in the immediate interest of those men, but it is an important question that should be tackled constructively after a careful detailed survey both of actual housing conditions and of the hygienic, nutritional and recreational needs of these men.

30. The Muslim standard of personal conduct means that so far the evil effects of irresponsibility in some fields have been largely kept at bay. But it cannot be too strongly urged that there should be no complacency about the risks. In so far as the remedy for this threat does not lie in encouragement of continuous family life among industrial employees, it must lie in the skill of social workers able to initiate programmes of healthy recreation and social education. This cannot be left to industrial employers. The men will not want to be under the eye of the boss in their leisure time. In any event many of them will be in small concerns. The community must provide men with the skill to give these homeless workers moral leadership of a practical kind.

31. It may in some areas be a well-established pattern for married men to work in towns while their immediate dependents remain members of their extended families back in villages, and this may work well and economically so long as pesonal factors are favourable. But it is difficult to believe that there is not and will not be a good deal of friction as time goes by. There would appear to be a need for some kind of advisory and liaison service which could act as a practical link when misunderstanding or anxiety arises on either side through separation. It might even begin at the level of a service of letter or message writing between illiterates. Whatever the form of the service turns out to be, here is a situation which will certainly tend to lead towards family disruption unless watched on the spot by social workers with imagination.

32. The nuclear family typical of the West, and the extended family typical of this country are both patterns. The married man working in town, with his wife and children living as part of the extended village family, is caught up in the tension between the two patterns. It may be that the tensions can be maintained, but this cannot be taken for granted. It is fraught with tremendous risks to the social and spiritual health of both the man and his family. It may be that one of the three choices has to be made at some point ; the man goes back to the village, the immediate family comes to join the man in town, or the man deserts his family altogether and becomes an urban " floater ". On the face of it, where the tension of separation becomes too great, the desirable solution is probably that the man's immediate family should join him in town. Again, there will be both a physical house problem and domestic home one, where the services of experienced social workers could quite certainly ease the strain and so avoid much family breakdown.

33. In all these respects the housing of men without their families gives rise to special problems, the handling of which ought to be done by social workers appointed early so that they may try pilot projects before the pressure of the situation becomes overwhelming. We, therefore, propose that some fifteen to twenty social workers should be connected with these areas as part of the urban community development projects.

### Co-operation with the Public Health Department in Domiciliary Service

34. The first line of attack on ill health is, of course, through large-scale sanitary measures. Beyond this there is boundless need for the education of the public in good and in simple remedial procedures, and health practices, which are at least as much social as strictly medical. Understanding of what contributes to good health is especially important for the women of the country on whom the care of the family in the home depends. Although much of this education work must be done by men and women with appropriate medical training, there is an important need for whole-hearted co-operation between medical and social workers for two reasons :

(*a*) While health considerations are a good reason for gaining entry to homes, resistance to good health practices may be based on sociological barriers which social workers may more easily surmount than medical workers.

(*b*) While good health is a valid object in itself and important in this country, it should also be used as a method of approach to the women with a view to arousing their sense of responsibility in other ways. The social education of women would be greatly facilitated if the home services of the public health departments could be harnessed for this purpose.

35. As trained social workers become available we should like to see the Central Planning Organisation, the Central and Provincial Social Welfare Boards and the appropriate Health authorities meet together to plan pilot projects designed to find out what could be effectively done by an approach to the home on a single broad front. The hope would be that such pilot projects would show that good preventive work could be done by women with a relatively simple and short training ; neither medical nor social as conventionally conceived at present. The pilot projects would have to be operated by conventionally trained people, but under imaginative leadership it would be a team job to find out what could be done by a new type of worker. We should like to see six to ten professional workers participating in two or three pilot projects of this kind under unified Health/Social work direction.

## Cooperation with the Education Service

36. One of the difficulties encountered by all primary education systems, before schooling becomes compulsory and free, is the irregular attendance of children and their premature withdrawal. This involves gross waste. Assuming that teachers were adequately paid to do good work, it would become of great importance that there should be good school attendance and that children who start should continue so long as they usefully can. It is now realised that the punitive approach to this problem is not necessarily the right one, and the present tendency is to appoint men and women to tackle the job as social workers, helping the family itself to see what it is missing by failing to use what the school offers. Social workers appointed for this work should greatly increase the value of educational effort.

37. In the chapter on Health we propose the establishment of school health clinics. We suggest that in about six to ten of these a social worker should be added to strengthen the ties between school and home on both the educational and health fronts. If this were done as a research project, useful data might be obtained about the social function of schools and subsequent policy might be more soundly based. In any event, it seems to us a mistake to leave the school teacher and the doctor to work independently with no means of establishing relationships with the home. We, therefore, propose that the social workers attached experimentally to school health clinics should also be concerned with school attendance and the creation of better relationships between parents and teachers.

## Refugees

38. A separate section is devoted to the special problems of refugees. (Paras 103—111 below).

## Child protection

39. In the opinion of competent social workers there are in Karachi and Dacca at least considerable numbers of destitute children, as must be expected in the early stages of all industrial development. Unless reclaimed, these are the core of the next generation of criminals, black marketeers, sex-delinquents and urban riff-raff. Urban community development programmes referred to above and good housing policies designed to preserve family life will diminish the number of such children. Meanwhile their existence is a disturbing fact, as also are child beggars exploited by parents and others ; there is important work for a highly skilled service in the discovery, reclamation and protection of such children. Such a service would need some sheltering homes but should also develop the use of " foster-homes " under careful supervision to avoid exploitation of foster children. Within a generation the spectacle of abandoned children and of child beggars should be wiped out. Legislation would probably be required and the service might be an expensive one if the scale of the problem proved to be large. But pilot schemes in a couple of cities, linked with a careful survey into the extent of the need, would certainly be valuable.

40. Such a service should be linked with a policy in relation to orphanages of an orthodox kind. The country has a considerable, though not accurately known, number of these. They should be surveyed and support should be given to those which could be effectively developed or where improvements in standards could be made by the employment of trained staff. A good deal of careful work needs to be done. In some genuinely disinterested orphanages there is gross over-crowding, which should be put right before numbers are increased. In others, the prime purpose of the orphanage is to provide a living for the person in charge. The constructive approach is badly needed.

41. As a general rule, we deprecate the establishment and perpetuation of orphanages which are self-contained in the matter of education and training. We think children should go out to the ordinary schools of the neighbourhood, or if the orphanage has a particularly good technical education branch, then outside children should be invited to take advantage of it. Segregation of orphans ought to be avoided, if possible, and begging by orphans ought to be forbidden by law, and the prohibition enforced.

42. We propose that about fifty professional workers should be employed in work for the protection of children in outside institutions.

### Child and adolescent recreation programme

43. One of the most valuable features of rural life which tends to get lost in urban conditions is the opportunity for children and adolescents to develop their powers of action and observation and co-operation through recreation, formal and informal. In the absence of opportunities for healthy group recreation in towns, the urban youngsters tend to form destructive groups or to become apathetic drifters. It is, therefore, of great importance that encouragement should be given to all organisations providing good recreational facilities for children and young people, such as scout and guide troops, youth hostels and sports and games associations.

44. We take the view that youth hostels can play a very significant part in encouraging the spirit of adventure. But care should be taken not to make the hostels too elaborate or solid. If extension is required, it should be " *katcha* " construction carried out by the youth hostelers themselves.

45. Plans ought also to be drawn up and executed for play-grounds in crowded areas. These ought to be liberally scattered throughout the cities, for transport is poor and evenings are short, and if children are to get the chance to play, it must be reasonably near their homes. Few policies will do more to cut at the roots of juvenile delinquency than adequate provision for recreation. Possibly the services of large numbers of well-disposed young men could be enrolled to teach sports. Ventures of this sort have been highly successful elsewhere. We should like to see about twenty-five workers concentrating on recreational work.

### Delinquency

46. The jails of the country for the most part are of a good standard and treatment of prisoners is humane. A wide variety of excellent industrial work is done by the prisoners and in many prisons there is also good adult educational activity. All the same, prisons are expensive to the community and imprisonment is not always an effective reformatory treatment. Thought, therefore, should be given to ways of preventing the creation of criminals, to the timely and constructive treatment of young delinquents and the establishment of an after-care service for prisoners, especially the young men released from Borstal Institutions. Several prison officials have recently made study tours abroad. We hope that their reports will be made available to their colleagues.

47. Modern experience in other countries has shown the high value of " probation ", the provisional release of the delinquent on condition that he submits and responds to the social educational help provided through a skilled social worker known as the " probation officer ". This service is particularly valuable in the treatment of juvenile and adolescent delinquents, and also has its place in the treatment of adult offenders. The term " probation" is used somewhat differently in this country and new terminology will be required, if developments of this sort are planned.

48. Finally, no man and especially no young man, should be released from prison without the offer of friendly support from an expert who can help him to find a job and decent company. (In particular, the work of Borstal Institutions is largely wasted if there is no after-care). We should like to see about 25 social workers joining the delinquency services.

### Welfare of the handicapped

49. The crippled, the blind and the deaf are a perpetual challenge to the conscience of a society, and efforts have been made in this country to care for them. It is important that such efforts should not be limited to keeping the victims 'safe'. They should be taught skills and useful accomplishments, as much in their own interest as in the interest of the society. There is scope for substantial government support for constructive efforts by voluntary societies to tackle the needs of the handicapped.

50. Since the handicapped need special schools, there is a strong case for making them the responsibility of the Education Department. For the present, however, education will be concentrating on the development of the general school system, and we suggest that, at any rate temporarily, the welfare and training of the handicapped should come under the Social Welfare Departments. It is, however, a field where the major burden must be taken by voluntary societies. We should like to see about twenty-five workers specialising in this activity.

### Welfare of women deprived of family support

51. Here also there is need for care which should mean more than 'safe custody'. Widows and divorced women who cannot rely on their families need the constructive care of voluntary societies to provide them with means for self-respecting employment. Otherwise, they may drift into the disastrous occupations of prostitution and begging. We should like to see about ten workers professionally engaged in helping these women.

### Medical social work

52. A good deal of hospital treatment and still more treatment in T.B. clinics is ineffective because the medical benefit of the treatment is lost through conditions in the home, where there is no possibility of after-care for convalescents or no possibility of isolation against infection. We need to develop medical social work, in which a trained social worker co-operates with the hospital and clinic staff in seeing that everything possible is done in the home to aid the patient's full recovery. Not only does this give the patient a better chance, but also it saves money by making hospital and clinic treatment effective. Where there is good medical social work, returns to hospital and the spread of infection are enormously reduced. It is a vital part of a good hospital service, and since Pakistan has hospitals and will continue to have them, it should develop medical social work of a good standard. We support the plan put forward by the Ministry of Works for the establishment of medical social work in the cities of Karachi, Dacca and Lahore, requiring about twenty-six trained workers.

53. At the same time, the existence of hospitals and the need for medical social work in connection with them should not distract attention from the main problem in a poor country, which is how to deal with disease without bringing people into hospital. Even the West is finding it hard to meet the high cost of hospitals. This country would be rendering a great service if it could conduct research and experiment into original ways of giving medical care in the home. Medical, nursing and social skills are all involved and perhaps a new type of training might be devised to produce appropriate workers.

**Beggars**

54. The large number of beggars in the country is a melancholy fact and the sight of them in the streets is degrading. A quick reaction is to wish to sweep them all up into institutions where they would be looked after and, if possible, reformed. But this would be very expensive and, except in the hands of a warden of very great skill, the colonies would certainly be established on such low standards that they would be liable to be a disgrace in a civilised country. Until we have more resources available, it is unlikely that any substantial government grants can profitably be spent on the reformation of beggars. But experimental projects of private agencies should deserve support if planned on a sound basis and we recommend that one pilot project for the rehabilitation of beggars should be established in each Province.

**Destitution**

55. Destitution has many different origins. The proposals made above deal with some of its aspects, like child protection, rehabilitation of widows, helping delinquents and handicapped persons. But, in so far as direct alleviation is concerned, the extent of poverty in the country is so great that no useful purpose will be served by extending relief on any wide or general basis. The country simply has not the resources at present to look after the destitute as it would like to do. The skilled relief of poverty is, however, an important service and, if there are voluntary societies which do good and careful work in this respect, it would not be out of place for reasonable subsidies to be given to such societies provided that their work was of a good standard and could be regarded as a pilot project for gaining experience of the problems of the relief of destitution.

56. We have discussed above a number of fields in which skilled work could usefully be done towards eliminating social wretchedness from the life of the people. In the next section we consider those aspects of work which must have priority in a situation where there is neither a corps of trained staff nor adequate finance to tackle more than a small part of what waits to be done.

57. Before we pass on to a consideration of resources, however, there is one further field of work important to social welfare to which we wish to refer. This is family planning, an approach to preventible social misery which arises in families where the number of children is too great to be adequately supported by the family income. This is associated with bad child and maternal health, a high infant mortality rate with the depressing effect this has on family life, apathy, squalor and the gross exploitation of child labour, which itself has big repercussions on the conditions of adult labour. Already there are some clinics, voluntarily supported, where advice on family planning has been given to any who ask for it. On social welfare grounds we think that there is a strong case for the establishment of such clinics. We propose that the matter should be referred sympathetically to the Central and Provincial Social Welfare Boards and that in suitable cases financial contributions should be made to the voluntary bodies concerned for well conceived and adequately staffed projects whose work would be open to appropriate inspection.

## RESOURCES, PRIORITIES AND TARGETS

58. Having stated in specific terms the kinds of work in the field of social welfare that need to be developed in the country during the Plan period, it is possible to survey resources and assess priorities and targets.

### Resources

59. The necessary material resources for a social welfare development programme are (*a*) persons skilled in social thinking and work either by long experience or by training or both, and (*b*) money, buildings and equipment. But a pre-requisite to good use of material resources is a wide-spread determination on the part of all leaders in government, administration and business life, and especially among women, that this country must take the initiative in social affairs and must go out to meet and avoid the kind of evils which have followed in the West from rapid economic change.

### Skilled people

60. The most important and the scarcest raw material for social development are persons with imagination and skill. Goodwill plus devoted hard work alone are not enough. The leadership in social work must rest with those who can look ahead, analyse new situations and both devise and carry out policies appropriate to the needs of today and tomorrow, ready to modify the policies and practices of yesterday as may be necessary in the light of a fuller understanding of human and social situations.

61. Such persons are found in two ways. On the one hand, there have for generations been men and women, and especially women ; of good economic status, who have shown a natural aptitude for understanding the needs of others and who have pioneered new services in spite of lack of formal training. It is impossible to over-emphasise the importance of people of this sort, whose scientific, enquiring and constructive minds have profoundly influenced both the attitude of their contemporaries and the administrative pattern of subsequent social welfare operations. Much depends in Pakistan on the effective emergence of more men and women of this kind over the next two or three decades.

62. The other way in which the necessary persons are found is by catching the interest of suitable men and women in their student years and by giving them appropriate training and subsequent professional employment. To begin with, such trained persons often lack the maturity of people who have years of practical experience, but as they gain experience they often have a critical approach derived from their theoretical studies which enables them to adapt the lessons of the past to the needs of the present and future in a way that more experienced amateurs find difficult.

63. The country needs both kinds of persons, the independent, experienced 'amateur' to give drive and leadership, the trained professional to give cutting-edge and stability to planning and field work, and to bring a critical mind to bear on unconfined enthusiasms. Both kinds of persons need the understanding support of each other. This does not always come easily, but each group should have the good sense to work in that direction. Already some persons of the first kind exist and more will emerge as women take a confident place in the nation's leadership. With regard to the second kind, there are at present a very few social workers, who have been trained abroad and a slightly larger number who have been members of pioneer social work courses run in this country on an experimental basis with help from the United Nations. By the beginning of the Plan period, 124 persons had been given some form of social welfare training, mostly for six months. For the first time a post-graduate university course in social work of two years' duration was started in the University of the Punjab at Lahore in 1954. We propose that this course should be expanded in numbers and that a parallel course should be started at the earliest possible moment in Dacca or Rajshahi. Later in the Plan period a third course might be started at some other suitable place.

64. The purpose of university training for social workers is two fold ; partly to stimulate them to use intelligence and intellectually disciplined imagination in analysing and assessing human needs and working out policies ; partly to introduce them under experienced guidance, to social conditions at the working level in such a way as to increase their capacity for understanding, and responding to, human situations. The training is, therefore, both theoretical and practical. The pulling together of the theoretical work and relating it to practical situations must be done in a department of social work by staff with first hand field knowledge of social relationships. At present we lack citizens with the necessary experience to staff university departments of social work and may have to secure the services of some foreign experts for a temporary period. Substantial provision should also be made for research, since students must be realistically trained in scientific observation, recording and reflection. Research includes the issue of publications, since too little of the literature of social work is based on experience in this country and in consequence seems unrealistic to students. Finally, a department of social work needs both independent academic quarters of its own and hostel accommodation for its students. So much of its work is community-centred and depends so heavily on the informal integration of theory and practice through discussion and evaluation that class-rooms, library and lodgings are not enough.

65. The effective training of social workers depends on the availability of good practical work through which the students may gain the right kind of experience. Because very little of this yet exists in the country, the number of trained social workers cannot be quickly expanded. We estimate that the maximum number that can be produced in the universities by 1960 is about 250. In addition, and to obtain additional workers who can quickly take responsibility for practical work in urban community development, the United Nations staff attached to the Federal Government is running a special nine-month course in Dacca with greater emphasis on practical work.

66. To increase the scope of the social welfare programme we propose that such courses similar to in-service training be launched in two other cities. They would draw heavily on persons now doing some type of social welfare work without adequate training. Most of them would be trained in the urban community development programme, obtaining practical experience by working alongside fully trained social workers. During the Plan period, up to 250 additional social workers might be available from this source, including trained workers now employed outside their special field. In order to obtain good students from all parts of the country for these courses, we propose that adequate monthly stipends should be paid to all selected candidates in need of support. If this is done, we do not foresee difficulty in getting a supply of suitable candidates.

67. Our plans for actual field work in social welfare are based on the assumption that these trained workers will provide the backbone of the programme, though much of the drive and policy making will come from the amateurs, the Federal and provincial governments and local self-governing bodies. Towards the end of the Plan period it will be possible to re-assess the needs, priorities and resources for social work for the subsequent years. It should then be possible either to increase the university output of trained staff or to decrease it somewhat, if a steadier long-term programme is worked out.

68. It would also be useful to organise short term courses from 24 hours to ten days for voluntary social workers and others who can never expect, for a variety of reasons, to take a full course. It is our hope that many of those who take the lead as committee members of voluntary societies and as part-time social workers may benefit from such courses.

## Material resources—money, buildings & equipment

69. We estimate that the total cost of a social welfare development programme built around the availability of about 500 trained workers will be of the order of Rs. 33 million over the Plan period, including training, government administrative costs, salaries of field workers, wages of auxiliary non-professional staff, and costs of buildings and equipment. Of this total, Rs. 13 million will be required for the capital cost of buildings, jeep-type vehicles, office equipment, etc., including about Rs. 7 million in foreign exchange.

## Voluntary finance

70. It is not possible to say how much money is already raised by voluntary effort for social welfare purposes in this country. Many people believe that the Muslim institution of *Zakat* could be vigorously presented in such a way as to elicit considerable amounts of additional money for development purposes. To do this, there would have to be a campaign on a nation-wide basis, which would take skilful organising. This could be done, but only if firmly related to a well-thought-out campaign for the development of social work, to which the Government was thoroughly committed, both administratively and by an undertaking to give matching contributions. It is expected that the national income will rise ; in particular a considerable number of individuals and corporate concerns will have substantially rising incomes. It is well worthwhile working hard to establish a habit of generous charitable giving on a systematic basis among such a public. " *Waqf* " is also a most important source of financial support from voluntary sources. It is by no means certain that all *waqfs* are wisely or honestly handled. We suggest that there should be a thorough enquiry into the law and administration of *waqfs* and that, if required, new legislation should be introduced.

## Priorities

71. Our proposals are closely integrated and do not easily lend themselves to classification in terms of priorities. A lesser programme than that presented is always possible, but the risks involved should not be overlooked. The proposed programme would require a consistent effort on the part of the Government but is in our view feasible. The process of industrialisation and urbanisation is making rapid progress with the risk of consequences in terms of social misery, chaos and squalor. We have the experience of western countries to warn and guide us and there can be no excuse for neglect. The price of such neglect cannot be measured in direct economic terms though it will quite certainly mean a less efficient labour force. The price is likely to be largely political, arising out of the exploitable discontent of miserable urban populations which lack healthy motivations, any sense of achievement, or responsible social leadership. But while we consider priorities not entirely appropriate, certain points can be made very sharply.

(*a*) No solid progress can be made without a corps of trained social workers. Therefore training must have first priority.

(*b*) But training cannot take place without practical experience in good working projects. Therefore, some extension of projects is essential. Within the various kinds of projects, urban community development should have first priority, since this is urgent preventive work and has a high training value. Resources being inadequate to cover the needs of the whole country, we recommend that development should in the first five years tend to be concentrated in areas where the projects can be used for training purposes. As social workers gain confidence, they should disperse to outlying areas, but to begin with they will need the convenience of concentration.

(*c*) It is worse than useless to train social workers and not to employ them on work for which they have been trained. Therefore, openings in the field must be designed in reasonably accurate relationship to the number of trained workers who will emerge from the universities and other courses. (These numbers can be closely controlled by award of stipends). The salary basis for trained social workers without supervisory duties should be at least Rs. 250-20-450 a month with prospects for advancement.

(*d*) Services for the direct relief of poverty are less important in this country at present than services for the development of human resources which will cut at the root of poverty. Hence, after urban community development, including special priority for areas with a heavy refugee concentration, and the appointment of social workers in new housing areas, we suggest the following priorities :

(*i*) Social education by social workers to get families and especially the mothers to co-operate in education and public health measures ;

(*ii*) recreational programmes for adolescents ;

(*iii*) institutional and non-institutional programmes for the care and protection of children deprived of normal home life ;

(*iv*) medical social work in hospitals and T. B. clinics designed to make the medical treatment effective in the home life of the patients ; and

(*v*) programmes for the training of the handicapped.

We should give low priorities to such services as the rehabilitation of adult beggars or the financial relief of destitution. These problems are spectacular and to tackle them is to win emotional satisfaction. But these are problems on such a scale that the national resources available cannot possibly go far, and what resources there are should go to the forms of welfare likely to show good economic and social returns.

## Targets

72. To sum up our proposals, for a social welfare programme we recommend :

(*a*) A training programme in universities, and special courses, designed to produce 500 trained social workers by the end of the Plan period. The future extent and nature of the courses could be then reviewed. This programme might require about 35 trained workers as teachers.

(*b*) A central and provincial administrative framework capable of initiating and sustaining some work itself and equally concerned to develop the services of voluntary social agencies.

(*c*) A steady programme of realistic field research into the nature of remediable social strains, using about 10 trained workers.

(*d*) Seventy urban community development projects with about 280 social workers, placing special emphasis on areas with heavy concentrations of refugees.

(*e*) Ten co-operative projects between public health and social workers.

(*f*) Ten co-operative projects between education and social workers.

(*g*) Twenty social workers in child and adolescent recreation programmes.

(*h*) Twenty workers in the field of institutional and non-institutional care of children deprived of normal home life.

(*i*) Twenty workers in programmes for the care and training of the handicapped.

(*j*) Twenty-five workers in programmes for the rehabilitation of delinquents.

(*k*) Twenty-six workers for medical social work in conjunction with hospitals and T. B. clinics.

(*l*) Six workers for the care of beggars and destitutes.

(*m*) Special assistance for tackling the particular problems of refugees and tribal areas.

## THE TRIBAL AREAS

### The North West Frontier Province Area

73. The Tribal Areas of the former North West Frontier Province are an irregular strip of country, 25,000 square miles in extent, lying between the settled parts of the former North West Frontier Province and the Afghan Frontier. For the most part, the territory is mountainous and barren, though there are some fertile valleys. The area is entirely rural and, while there is an extensive system of strategic roads the villages are for the most part very inaccessible and the population very scattered. The total population of these tribal areas is estimated to be a little over 3 million.

74. The mode of life in these areas is radically different from that of the settled areas of the North West and of the rest of the country. The people have a tribal organisation, the administrative organ of which is the *Jirga* or Council of Elders, a highly democratic body, of which a "*malik*" is the spokesman and, if a strong character, may be a sort of informal leader. But *maliks* cannot commit their *Jirgas*, and corporate action can only occur after the *Jirga* has come to a unanimous decision, which is then binding on all. The representative of the Government is not a Deputy Commissioner, Collector, or District Magistrate, but a Political Agent, whose business it is to look after the interests of the Government and the welfare of the tribal peoples within the framework of *Jirgas* and against the background of institutional tribal life.

75. A great administrative difficulty arising from this fact is that the Tribal Areas are not subject to the general law of the land, being exempt from taxation, from police authority and from the application of general laws. But this does not mean that the areas are disorderly : far from it. They are subject to a very rigid code of tribal custom, sternly and vigorously applied by the *Jirgas*, who protect the community from crimes against it or the violation of community taboos. As a form of order this is outdated in the modern world, but it is a form of order when applied to internal tribal affairs. Crimes of persons against persons as such are no concern of the *Jirgas*. The tribesmen, not bound by laws about fire-arms, are free to carry rifles and daggers. The Political Agent is the channel through whom government policy and government subsidies pass.

76. The whole situation, delicate enough already, is complicated by the institution of the blood-feud, which hangs heavily over the whole area. Personal injury demands personal or family vengeance in a never-ending chain. Around some of the larger settlements there are protected areas, where the government, through the local *Jirgas*, is able to impose material compensation for personal injury and so remove the fear of violent reprisal. But the protected areas are small in extent and even for a compensated offence the offender is liable to reprisal the moment he passes out of the protected area. The consequence of the blood-feud is that outside the protected areas all economic enterprise is subject to terrible hazards, and there is little or no inducement to men to do constructive work—though women are very much safer. Many of the men are "*Khassedars*", *i.e.*, members

of armed local squads whose business it is to keep their particular stretch of road open, while others work for the Public Works Department on roads and culverts. But economic enterprise generally faces very great obstacles.

77. On the whole, the traditional pre-independence approach to this situation was to play a sort of gigantic game of military poker ; how much peace could be bought with how little money and enough military operations to preserve the respect of the tribesmen. But very little constructive effort towards development was made.

78. With independence, the atmosphere has changed a great deal. On the one hand, the number of regular troops in the areas has been enormously reduced, and on the other the number of schools, hospitals, dispensaries and the like has greatly increased. There are now about 300 schools as compared with about 60 at partition, and a substantial number of scholarships is given for higher studies outside the tribal areas. The number of dispensaries and hospitals has been doubled, and more are planned. There is strong evidence that these things are being increasingly demanded by the tribesmen.

79. Since independence there have also been some small efforts to stimulate cottage industries and to train more skilled workers for them. There have been minor advances in irrigation and land reclamation and a project for the development of 60,000 acres is under way. Forests also are receiving attention. Development on the edge of the Tribal Areas has also important repercussions. The P. I. D. C. woollen Mill at Bannu, for instance, offers a local market for wool from the Tribal Areas and also employment to some Tribal workers. There are proposals for using its needs and expert guidance to develop related cottage industries. The Kurram Garhi dam also has offered tribesmen the experience of regular paid employment.

80. The Tribal Areas are, as a whole, still very poor and unsettled, but changes have been taking place, and many of the tribal people, of the middle and younger generations at least, are ready for more. The main object of policy must be to increase as rapidly as possible the amount of money effectively spent on constructive development. In time, it may be that subsidies would correspondingly fall. This in turn depends on a steady mitigation of the virulence of blood-feuds and their depressing effects. But there should be no doubt in anybody's mind that this process will inevitably be slow and that the Political Agents and their staffs will need to exercise great skill, if steady progress is to be made. Nothing positive in the tribal areas will be accomplished by external fiat and imposition from above. Healthy growth will only come as the people themselves come to feel the futility of the blood-feuds and as change comes from below.

81. Apart from the personal influence of the Political Agents and their staffs, two main forms of development can contribute to the dawning sense of the futility of personal violence—that is, (i) the establishment of more schools, dispensaries, hospitals and the like, both within and just outside the Tribal Areas, and (ii) the encouragement of economic and constructive activity within as well as on the fringes of the Areas.

82. In establishing schools, dispensaries and hospitals both inside and outside the areas, as fast as the tribesmen ask for them and as fast as money and good staff can be provided, a useful job is being done by bringing tribal people together for a common purpose, regardless of personal enmities. Boys and girls, men and women who have met in this way will be less ready to think of others as blood-enemies. There is a strong case for, at any rate, a limited amount of boarding education outside the tribal territories, for boys at first, perhaps later for girls. Here youngsters see even more clearly the futility of blood-enmity. We recommend that the schools should have a robust pre-cadet character, as a half way stage between the absolute authority of tribal life and the free responsibility of a democratic society.

83. We think, too, that a bold development of health work would yield good returns. Devoted men and women willing to move out of hospitals and dispensaries into the homes of the people, teaching health principles as well as healing bodies, could do a very effective job of pacification by demonstrating no more than an attitude. What is important is that such work should be done by really good staff : mediocre staff will do harm rather than good.

84. The strong Muslim beliefs of the tribal people provide a possible opening for a religious adult educational campaign. The life of the Prophet is full of incidents which would catch the interest and imagination of the tribesmen. His signal achievement in reducing tribal tensions in Arabia and in developing wider loyalties might, with skill, be turned to advantage in the Tribal Areas. We recommend that the University of Peshawar should be asked to prepare a suitable syllabus for religious adult education in the Tribal Areas and that practical arrangements for teaching should be worked out between the University and the Tribal Areas Administration.

85. It will probably be easier to establish economic enterprise and large public works on the fringes of the Tribal Areas than actually within them, and such developments should be vigorously encouraged, apart from their inherent merits, as a contribution to tribal development. Anything which gives the tribesmen opportunities for steady employment even over the winter months, increases the incentives to a settled way of life. Any major enterprise employing substantial numbers should have a suitably trained and appropriately qualified welfare officer, whose business it would be to see that both the employed tribesmen and their families back in the Tribal Areas gain the maximum educational advantage from the men's experience of regular work in a settled area. Schemes for the settlement of tribal families on land (*e.g.*, in the Thal area) should also include specially appointed and suitable welfare officers, aware of the two-way influences at work between the settled and Tribal Areas. It should not, however, be assumed that such welfare work would take conventional patterns. The officer employed should be guided by the sociological research findings of the department undertaking such work in the University of Peshawar.

86. Economic development within the territories is difficult for two reasons :—

(*a*) Remoteness from markets and lack of technical " know-how " which, however, could quickly be overcome if there were adequate stimulus like the discovery of really rich mineral deposits.

(*b*) Insecurity of person and of property outside the walls of the fortified houses makes it difficult for any man or group of men to assemble on a development enterprise.

87. Nevertheless, local people of experience and judgement are confident that things could be done on a small scale if favourable opportunities could be quickly exploited, for example cottage spinning and weaving, based on the supervision and needs of the local textile factories. Small schemes of flood control and water conservation might be established in areas of relative harmony. But the essence of such schemes is the seizing of an opportunity at the moment when it is ripe. To have to work out schemes in laborious detail for submission to Karachi or even Peshawar or Lahore is heart-breaking for local administrative officers, whose job is essentially one of sizing up personal situations and sowing good ideas while the going is good. On the other hand, the Political Agents, through whose hands all tribal matters must pass for political reasons, are not specialists in economic development. If they are to seize changes, they must have technical advisers easily available to them, men of outstanding imagination, willing to work through the Political Agents much more strictly than they do through Deputy Commissioners in settled areas. Such men should be sought out and recruited for this service in adequate numbers.

88. The former North West Frotier Province submitted development proposals to the Planning Board along the lines indicated above to the extent of about Rs. 70 lakh. These proposals, which we find well justified, have been included in the relevant schemes of the Plan. In addition, we have recommended that Tribal Areas should have access to funds set aside for local development schemes outside Village AID areas. They should be channelled through Political Agents and made available for any local development project which a group of tribal people want to carry out. It has been recommended that the conditions under which this money can be used should be less stringent in tribal than in settled areas. For instance, the local contribution required may be smaller or might be waived entirely in special cases. We have proposed a sum of Rs. 5 million during the Plan period, of which Rs. 3 million could be earmarked for the North West Frontier Province tribes and the balance for tribes in former Baluchistan and in East Pakistan.

89. In handling these funds the Political Agents would need technical advice and assistance. As in settled areas, the local representatives of the technical departments, as well as local leaders, should provide this advice. It would be particularly important to maintain close liaison with the research workers of the Peshawar University, and the Social Welfare Board in order to draw on their experience in using these funds to maximum advantage.

90. An annual report should be made on these expenditures, which might well be the subject of regular independent assessment based on annual visits. Such a procedure would enable the Tribal Administration to move quickly and flexibly, and learn from its own mistakes ; the Political Agents and their staff would become experts at seizing promising openings. If the regular assessment were done by a standing group or by an independent person for 5 years, development of real quality might emerge. The Political Agents and their staff must know their people ; they must be able to feed in sound ideas to the appropriate *Jirgas* and lot credit for success rest where it may. Leadership in the Tribal Areas is personal in a very high degree, and it appears to us that there would be much benefit in establishing a higher measure of continuity in the administration, both in Peshawar and in the Areas themselves, if this is in any way and in any degree feasible. We recognise, of course, that there are political and administrative considerations of major importance which may cut the other way. But even if administrative officers continue to move as at present, we still think that the expansion of schools, health services and economic enterprises should proceed as fast as possible. If officers are to be posted for short periods, it is all the more important that money be available so that those with good ideas may see something happening during their tenure of a particular post.

91. We suggest that, in order to encourage able boys from the Tribal Areas to work in these areas, some of those who show promise at school should be given university scholarships and should receive special training which would enable them to become development assistants to the Political Agents. The scholarships should only be given in return for a pledge to work for at least five years in the Tribal Areas. In this way, it would be possible to train a body of tribesmen to think in development terms and to form a cadre available for service throughout the Tribal Administration from the highest ranks to the most humble.

92. This brings us to the question of staff generally, all the way from village teachers and compounders, through agricultural extension workers and executive engineers, to the C. S. P. administrators. The work itself is perhaps not more difficult than work in settled areas elsewhere in the country but its conditions are much more trying—isolation, both physical and cultural, a hard life physically, not much chance of statisfactory family life, and some risk to life and limb. Leadership on the Frontier must have a quality of austerity not required elsewhere, and it needs an unobtrusive fervour not easily found or maintained. We suggest that it might be feasible to establish a special elite cadre of which

tribesmen would themselves provide the hard core, to include all functions and grades, of men and women willing to tackle this job. The people required would need appropriate pay, but the primary inducement should be the honour of serving their fellow citizens in a specially difficult area. One of the hardest tasks in the development field will be to encourage the women of the Tribal Areas to play a full part as responsible citizens. Every effort should be made to encourage the growth of an educated group of women within the Tribal Areas, but it would be unrealistic to do anything other than seek women from outside the Areas who for some years at least would devote themselves to Tribal welfare. Some women from the settled territories of the former North West Frontier Province and other parts of the country and perhaps even from the other countries may be willing or even eager to serve the people of the Tribal Areas if security conditions permit.

93. Finally, we consider it important that there should be good scientific studies of life in the Tribal Areas, to serve as guides to future policy. While the Government servants who have worked in Tribal Areas have vast knowledge, it is not systematised, nor continuously used for the development of policy. Studies should be made of the successful steps taken in particular areas like the State of Swat to effect beneficial change ; it would be good to know more about the possibility of using the effective democracy of the *Jirgas* as the basis of economic and social co-operative effect ; about the effect of schools and hospitals on the local outlook, about the conditions of successful economic enterprise, and about the role of women in tribal society. For the sake of history, we suggest a thorough study of the Political Agent and his gradual transformation from a preserver of peace into a leader of development activities.

94. These are only some of the aspects of tribal areas that we need to know more about. The University of Peshawar should be offered a special grant of, say, Rs. 5 lakh over the Plan period to establish a research department concerned with tribal studies. It would certainly be desirable to staff this department largely with men from the Tribal Areas ; for this purpose special scholarships would be necessary and, even if it took time to establish a sufficiently qualified staff, the ultimate quality of the work would in our view justify slow growth.

### The Baluchistan Tribes

95. Though Baluchistan is 134,140 sq. miles in area, it has a comparatively small population of 1,174,000. A major reason is its inhospitable arid wastes and bleak mountain sides. The area is said to be rich in minerals, but detailed surveys have still to be made. Approximately 91 per cent of the people are tribal, but they are subject to the customary law and only nominally governed by the *Jirga* system. Only 21 per cent of the population is Pathan and bears a resemblance to the Tribals of the North West Frontier with the Zhob Area as its home. The rest of the tribes are mainly from the two main ethnic groups of Baloch and Baruhi, who are different from the Pathans.

96. The government of these tribes is more feudal in character than in the North West Frontier, with the tribal Maliks exercising great powers. They are nominally elected by the elders of the tribe, but the position is in fact usually inherited. The tribals of the North West Frontier pride themselves on the spirit of equality, but in Baluchistan the distinction between the very rich and the very poor is great. Because the latter category form a high percentage of the population, there is a great deal of malnutrition, poverty, disease and ignorance, together with all the attendant ills of superstition and apathy. Unhygienic conditions have led to endemic typhus, which is transmitted by the Parwindah nomads from Afghanistan.

97. Development has been extremely difficult, because of a lack of water and communications and the great distances between fertile areas. Agriculture and sheep rearing are by far the most important occupations and account for about 260,000 of a potential labour force of about 350,000. As in the case of the North West Frontier, the Political Agent is the channel through whom government policy passes. The people generally are peace-loving, however, and the subsidy system is not in use.

98. Since partition there has been a certain amount of development in areas other than Quetta, which monopolised activity before for political and strategic reasons. Problems of water supply, irrigation and soil erosion are being taken up, while education and health are receiving serious attention. Special scholarships are being offered for Tribal children. A Village AID training centre was set up in Pishin in 1953 and forty-two trainees have qualified.

99. The economic and social problems of the Baluchistan Tribal Areas differ considerably from those of the North West Frontier, but they also require special attention and somewhat similar remedies. We recommend that Tribal Areas of Baluchistan should have a share in the special provision of 5 million rupees intended for local development schemes in Tribal Areas generally. In view of concentration of tribal people in small towns, their problems lend themselves to treatment by means of urban community development projects. We recommend that an urban community development project should be started in Mastung, 30 miles from Quetta, and used as a pilot project to train workers on the job in community development. The workers thus trained could later develop projects in such towns as Kharan, Timbat, Khuzdar and Bagh. These projects would do much to develop local initiative and self-government, a force which the tribes now appear to have lost. Funds for these projects would come from the allocation for community projects under social welfare. Recommendations with respect to promoting adult religious education and close liaison with the Social Welfare Board, made in the case of the North West Frontier tribes, apply here as well.

### The Tribal areas of East Pakistan

100. The Chittagong Hill Tribes have a character of their own and are ethnically different from the rest of the people of East Pakistan. There are three main groups : the Chakmas, Bomangs and Mongs or Mughs, occupying the northern, central and southern areas of the Chittagong Hill Tracts, and numbering approximately 287,000 according to latest census. They are Buddhist in faith and mostly peace-loving. Matriarchy is a recognised way of life, and women not only exercise a good deal of power but are energetic and good artisans. The Chakmas are more advanced than the other tribes, and some of them have taken to trade and commerce. Rangamati, which is the headquarters of the Deputy Commissioner, is in the Centre of Chakma territory and is approachable by road from Chittagong. For the most part the area is covered with virgin forests and villagers live simple lives in their bamboo hut villages. There is a distrust of strangers and a fear born of lack of knowledge.

101. With the opening of the paper mill at Chandragona and the building operations of the Karnaphuli dam, which lie on its borders more attention is being focussed on this area. Bamboos for the mills and foodstuff must come from it. It is believed to be rich in archaeological remains and to hold promise of oil and coal. Tourism might bring added income when the communication are improved. But for Rangamati, which is more a township than a town, there has as yet been little development, and the work of the administration has been mainly to deal with the petty jealousies and crimes of a backward people.

102. On the whole, however, the people are of a happy disposition and do not appear to suffer from any major problems except a lack of co-operation with the settled areas. Misunderstanding is often bred through lack of participation in common activities. It is, therefore, necessary that the people of this area should mix more with other people of East Pakistan.

*Recommendations.*—The Chittagong Hill tribes should get a share from the allocation of the 5 million rupees we have proposed for local development schemes on Tribal Areas. The funds would be channelled through the Deputy Commissioner and spent on schemes to be drawn up with the assistance of the technical departments and as far as possible in conformity with the wishes of the people.

## THE REFUGEE PROBLEM

103. Mention is often made of the refugee problem as if it were a single problem with a single answer about a homogeneous body of persons. It would be more correct to talk of " refugee problems " which collectively present a series of social problems of great magnitude. By the end of 1947 nearly 5 million persons had entered the country, the vast majority of them in a state of destitution. The number increased to over seven million by the beginning of 1951, when the first census was taken. The number of refugees is now estimated to have exceeded 8 million, which means that they represent roughly 10 per cent of the population. Of these, 6·7 million are estimated to be in West Pakistan and the rest in East Pakistan. A group as large as this naturally has a varied background and problems. Although statistics are inaccurate and inadequate, about 70 per cent are estimated to come from rural areas and 30 per cent from urban areas. The resettlement of rural refugees has been simple and more successful. The problem of urban refugees is more difficult, with special concentration in Karachi which continues to receive up to 60 per cent of incoming refugees.

104. A rough estimate is that 2 million refugees remain to be resettled. Generally, settlement of urban refugees has been synonymous with housing, but many face such additional problems as uncertain employment, disrupted families and adjustment to a new society—especially if they come from south India or lived in villages and are now squatters in urban areas.

105. Some 30 million rupees have been allocated since independence by the Central and Provincial Governments to help refugees. Much of this has gone for the relief of immediate distress and the development of housing. The machinery for this assistance is not yet free of administrative problems. Allotment procedures in some cases have resulted either in lack of allotment or multiple allotments and have led to frustration and discouragement. There appears to be difficulty in obtaining loans either for house building or other purposes. Many of these difficulties have arisen from a lack of " known-how " by the refugees themselves. The solution to these problems lies as much in assistance to refugees to give them greater knowledge of the services available to them as in an improvement of administration.

106. We have suggested specific provisions for specific refugee problems, but our basic approach is that the refugees must not be regarded as a separate class of the community. We have dealt with problems which face the country in various fields, and our recommendations apply to all. Some problems, such as lack of housing, are undoubtedly of more importance to the refugee population than to others, and they will benefit more from attempts at their solution, but the country's problems need to be attacked as a whole. We feel that any tendency to look on " refugees " not as persons like other people with a number of individual differences but as a labelled group attracting sympathy, or fear, must be discouraged. There is, indeed, an inherent danger in the very use of the term " refugee ",

as it immediately brings to mind the idea of non-refugees in contrast to refugees and creates a psychological barrier which need not be there. In our country the term " muhajir ", though inadequate, is far more appropriate and dignified, as it recalls to mind the relationship between the Ansars and Muhajirs at Medina based on co-operation and integration, illustrated by the example of the Holy Prophet and his followers. In many fields and areas of the country it is not really possible to treat the " refugee problem " as separate from the total national life. In some areas Muhajirs are such a large proportion of the population that separate programmes for them can have no meaning or purpose. But even where this is not the case, programmes should be conceived as general programmes in order to promote the ideas of integrated communities.

107. In the field of housing, separate colonies and settlements increase a feeling of living on the fringe of society and delay the process of adjustment and co-operation between muhajirs and others. In dealing with Housing and Settlements we have, therefore, recommended that housing programmes should be promoted as national programmes with special provision for muhajirs, houses will be allotted on the basis of need and Muhajirs will be the primary beneficiaries. Out of 784 million rupees for the national housing programme, as much as 165 million rupees is intended solely for muhajirs, who will also share in the benefits of all other housing schemes. Similarly in other fields—health, education, small-scale industry, etc.—no separate provision has been made for refugees in the development programme. They will benefit more from particular schemes, because their needs or skills are greater, but in all these programmes they should be treated as full and normal citizens of the country, not as a special and separate category.

108. The same principle applies in the field of social welfare itself. We have provided for a single urban community development programme. However, since the problems of areas with heavy concentration of muhajirs are likely to be particularly great, we have suggested that twenty or twenty-five of the 70 community development projects we recommend should be specifically located in such areas, benefiting about a million people. This is similar to the special attention paid to other problem areas, such as new housing schemes in urban areas for men without families. In other fields of social welfare also such as assistance to neglected children and women, youth work, and provision of recreation facilities, we have proposed a single programme. Undoubtedly many of the schemes will be of particular benefit to muhajirs, because some of them will be among the groups most needing assistance. They will benefit not as muhajirs however, but as individuals who particularly need help.

109. There are, however, a few problems peculiar to muhajirs as such and special provision has to be made for them. The closing of a point of entry such as Khokrapar will not necessarily stop the influx of refugees so long as the need remains, as has been witnessed in other parts of the world. If the incoming refugees could be provided with assistance and advice at points of entry including guidance and employment opportunities, their later integration would be much easier. We therefore recommend the expansion of the staff at any place where refugees continue to enter in numbers.

110. Provision must be made for recovered abducted women and their children. This requires not only a place of shelter and physical rehabilitation, but also assistance in re-adjustment to society, perhaps craft training, certainly special psychological support. Trained workers will be needed for this purpose. Provision for both workers and funds has been made in the programme. Training in social work should also be provided to those Refugee Welfare Officers who would benefit from it. Funds for such in-service training have been provided in the programme.

111. The extent of the problems remaining to be solved before muhajirs are integrated into society is not fully known. We do not know accurately how many have been settled and what additional steps are required for full integration. Substantial numbers remain to be settled and the best means for achieving this need to be explored. Policies on allotment of evacuee property, the continued influx of refugees and loans need to be re-examined. Considerable experience has been gathered in other countries in dealing with difficult refugee problems. We, therefore, recommend the setting up of a high level committee/commission to obtain the necessary data and to examine and to make recommendations on the residual problems of refugee integration. If considered necessary, this body should obtain the advice of a person who has had wide experience of tackling refugee problems in other countries.

## ORGANISATION AND ADMINISTRATION

### Central Government

112. In principle, those charged with responsibilities for social planning and for the execution of social welfare programmes should be closely in touch with popular opinion, and policies should be subject to the checks and stimuli exercised through elected representatives. This means that care for social welfare should be placed with a Ministry, either an existing one or a new one. At present, however, there is little general understanding of social planning and of planned social welfare policies, and it may be difficult for these matters to form the core of a Ministry's work. To attach the functions and operations outlined earlier in this chapter to an existing Ministry (*e.g.* Health, Education, Labour or Works) would inevitably mean assigning the new functions a junior status in a Ministry with well-accepted and operating interests elsewhere. It would be futile to hope for vigorous development in such circumstances. Moreover, the prevailing financial procedures are not appropriate for the extensive grant-giving activities which must be developed in the field of social welfare, if full use is to be made of the existing and potential activity of voluntary societies. We accordingly recommend that development in social planning and social welfare ought to be handled, at any rate during the Plan period, by an *ad hoc* organisation, even if it is formally a part of a Ministry.

113. In considering this question, the following points have to be taken into account :

(*a*) The procedure should be as simple as possible and *must* be designed to get the major weight of implementing social policies taken by the Provinces.

(*b*) In this country, where successful economic development will involve a social revolution, it is essential that any planning authority should have social planning advice integrated into its thinking at all levels, including the highest. This means that the Planning Authority should have a Social Division manned by a small but very able staff dealing with education, health, national housing, rural and urban development, rehabilitation of refugees, labour and the Tribal Areas and social welfare, including social defence.

(*c*) We do not have so many able specialists in social affairs that we can easily afford to have two parallel lines of able people, planners and operations ; though in 5 or 10 years the position may be different.

(*d*) Most of the active work in the field of social provision must be done at the Provincial and local government level. The Centre needs a strong and able but a numerically limited staff.

(*e*) Social planning and welfare operations in the field must be effectively integrated so that field experience modifies plans while planning adds vision to field work.

(*f*) Thinking on the national scale, many major policy questions will need the attention of the Central Government, and there must be easy channels for cross-communication between the Centre and the Provinces.

(*g*) At vital points the influence of elected representatives should be felt.

(*h*) But for an initial period of, say, 5 to 10 years, social planning and welfare development should be kept as far as possible out of the hurly burly of political strife and should also be free to develop a momentum of their own, administratively independent of existing government functions in the social field, such as education or health.

114. Because of these factors, we recommend that a Central Social Welfare Board should be established. Its Chairman should be the Minister for Social Affairs. This body should exercise a large degree of independence, with its own staff and officers, disposing of financial grants received from the Central Government, and having its own speedy procedures for making grants-in-aid. Its budget should be guaranteed for a period of years. (The total sum required over the Plan period for the administration according to our proposals would be of the order of Rs. 1·6 million).

Its membership should be :

Chairman : The Minister.

Vice-Chairman : An independent public person (preferably a woman).

The Chairman of the West Pakistan Social Welfare Board.

The Chairman of the East Pakistan Social Welfare Board.

A representative of the Central Planning Organisation (in a consultative capacity).

Six to eight independent persons (as many women as possible) with interest and experience in the social field.

The senior officer of the Village AID Administration.

The senior civil servants including the Secretary to Government in the Ministry.

It should meet at least monthly for the first twelve months of its existence; later it might meet about 6 times a year. Its staff should consist of a Secretary/Director, who might also be a senior staff member of the Social Division of the Planning Organisation, two officers for community development and the encouragement of voluntary societies, who should spend a large part of their time on tour in the country, and a Director of Information and Research in Social Affairs (shared if possible with the Planning Organisation). The status of the Chief officer of the Central Social Welfare Board needs careful definition. If possible, the Vice-Chairman of the Board who should be a woman, might be the chief officer with direct access to the Minister.

115. The functions of the Central Social Welfare Board should be as follows :

(*a*) Consideration of broad policies for the development of social well-being, including the formulation of experimental policies, which may cut across the departmental lines of education, health, housing, refugees and labour in the interest of the social well-being of the country.

(*b*) The encouragement of high standards of performance in both official and voluntary effort in the social welfare field throughout the country.

(*c*) Help and guidance in the establishment of Provincial Social Welfare Boards and the definition of their functions.

(*d*) Receipt of central funds earmarked for social welfare and their distribution to the Provincial Governments or directly to agencies engaged in the field, in the absence of appropriate action by the Provincial Social Welfare Boards.

(*e*) The organisation, in conjunction with Universities, Public Service Commissions, and other agencies, of the recruitment and training of professional social workers.

(*f*) Negotiating, in conjunction with the appropriate Government Departments, for the engagement of foreign staff and for the receipt of foreign aid in connection with social welfare activities.

(*g*) Responsibility for public relations on a nation-wide basis, and for the co-ordination of statistical and research material and its publication when desirable.

The office work involved in these duties would not be very heavy and could be easily carried by a small staff, at least some of whom must have time to tour extensively in the provinces.

**Provinces**

116. It might be desirable to establish a Secretariat Department (or Ministry) of Labour and Social Welfare in each province. We understand that the West Pakistan Provincial Government have already decided to establish a Ministry of Social Welfare and Local Government. We have no strong views about which of the two combinations is preferable; indeed there may be some other equally good combination. We are, however, firmly of the opinion that one of the Provincial development ministries must have social welfare specifically assigned to it as one of its major responsibilities, pending the establishment of fully self-contained social welfare ministries in the fulness of time. Whatever arrangement is made in this behalf we propose that there should be a Provincial Social Welfare Board, whose Chairman should be the Minister for Social Welfare with a Vice-Chairman drawn from the ranks of independent citizens, six to ten members with experience, skill, and enthusiasm in non-official social work of various kinds, two or three members of elected legislatures and three to four representatives of Ministries with parallel functions including Village AID. The Provincial Government should decide whether the Board should have administrative functions or should only be advisory. The Board should in any case be encouraged to submit to Provincial Governments and local authorities policies which cut across departmental boundaries, if these stand in the way of appropriate services.

117. The Provincial Social Welfare Board should be given a status which would make its deliberations and decisions of real importance, while not detracting from the constitutional responsibility of the Minister for Social Welfare. In these circumstances, the Secretary of the Ministry should also be Secretary of the Provincial Social Welfare Board. If it should, however, be decided not to assign social welfare as a specific subject to a Ministry in East Pakistan, we recommend that the Board should have an independent existence, and should work directly under its Ministerial Chairman rather than through his departmental staff. In either type of organisation, it is essential that the officers and the staff should be able to move quickly to execute schemes and to make grants to voluntary bodies.

118. Although each Provincial Government will work out its own administrative pattern, we suggest that there should be three sections :

**(a) Urban community development dealing with :**

(*i*) Community development schemes.

(*ii*) Social Aspects of all urban housing schemes.

(*iii*) Social work support in selected areas for public health programmes.

(*iv*) Social work support in selected areas for educational programmes.

In these fields the Provincial organisation should operate directly, employing staff for the field work level, but enrolling the help of voluntary societies, of local authorities, and of individual volunteers to the maximum extent. Projects should be closely related to the training needs of the Universities and other courses in social work.

**(b) Research and Evaluation :**

(*i*) Original sociological research, either directly or through universities, designed to elucidate the nature of the social needs of the province.

(*ii*) An itinerant advisory service mainly carried by the Advisors and Senior Field Inspectors, designed to raise standards of work both in urban community development and in urban and rural voluntary societies by spreading ideas and evaluating performance.

**(c) Services by voluntary societies :**

A section concerned with the encouraging and supporting of voluntary societies most of whom will be providing curative and rescue service.

In supporting curative social welfare, it is suggested that for the next five years at least the policy should be to give support only where voluntary effort is prepared to shoulder the main burden. Grants-in-aid should be given towards *new* or *extended* or *improved* work on clearly understood conditions.

**Local authorities**

119. We have said nothing about the contribution of local authorities to social planning and social welfare programmes. This is not because local authorities do not matter ; they are most important. But in a general report such as this, it is not possible to deal in any sort of detail with the variety of local authorities in the provinces or with the very uneven quality of their performance. In our view, the Provincial Governments should take very active steps, first to discover which local authorities are willing to act vigorously and to encourage them with grants, and then to campaign to arouse the interest of others. Local authorities should be encouraged to play a part in the development of social welfare activities, and in the support of local voluntary societies. It is suggested that the staff appointed in the Social Welfare Organisation without social work experience should spend at least three and if possible six months abroad on a suitable study tour. The staff as a whole should be adequate in numbers to keep in real touch with work in the field by getting out of the office to the maximum extent possible : it should work in such a way as largely to decentralise detailed responsibility.

### Employment of Provincial Social Workers

120. It is important to ensure that there should be no significant unemployment of trained staff. The administrative scheme we have proposed is designed to provide the necessary controls for this purpose. The Provincial Governments should themselves be direct employers in community development schemes, which will employ about half of the social workers. This proportion could be increased or decreased a little in relation to the pressure for trained workers from voluntary organisations. The Centre, through its financial subsidies, will be the decisive factor in formulating training policy for the production of new social workers and will also have the provincial forecasts of projects under consideration. The Centre will be able to influence the number of universities starting courses and the number of students for whom stipends will be offered. Central and Provincial Governments should take special care that all trained workers are suitably employed and are provided with prospects of promotions in their careers comparable to those in parallel services. They should work out policies for this purpose and make effective arrangements for implementing them.

### Co-ordination of voluntary societies

121. Both the Central Social Welfare Board (or Council) and the Provincial Boards would be strengthened if they could rely on the advice and help of strong federations, representing all important voluntary societies. We suggest that steps should be taken to establish Provincial Councils of Social Service with a small but full-time staff, whose first duty should be to survey the extent of organised voluntary social service in the country at the present time.

### Control of grants

122. While there must be assurance that money is wisely, honestly and competently spent, a system must be devised which gives speed and reasonable freedom to the operating agency. In particular, decisions should be taken quickly by grant-giving bodies ; the grant should be payable immediately after the decision, and the receiving body should be free to spend the money as it finds appropriate within the total budget allocations. In order to give the Provinces greater initiative, the Central Social Welfare Board (or Council) should advance initially, say, Rs. 5 lakh on account. Subsequently, the Provinces should make quarterly (or six-monthly) reports of actual and projected expenditure and grants. This would enable the Centre to keep developments under continuous review and to adjust training and the future trend of development if there were any tendency for them to get out of phase. In order to ensure balanced development between the direct field operations of the Provincial Governments and the voluntary organisations, it is suggested that neither should receive less than 45 per cent nor more than 55 per cent of the total grants in any one year.

## LEGISLATION

123. Since the country is entering the stormy waters of an industrial and social revolution, the importance of good legislation is obvious. Yet to secure good legislation is a delicate matter. On the one hand, it is good that against the foreground of change there should be a solid background of fundamental legislative order ; on the other, there is real danger that excessive and premature legislation may, by its ineffectiveness, bring good intentions into disrepute. It is universal experience that legislation is useless as an instrument of reform until public opinion is prepared to accept the new law in general and until the Government has the means to enforce observance in particular.

124. We do not, therefore, propose that there should be any substantial output of new legislation relating to social welfare. We suggest that the Central Social Welfare Board and the provincial Social Welfare Boards should first spend as much time as may be necessary observing the working of existing legislation at the national and local levels, and then formulate legislative programmes of such an order as will carry public opinion and be enforceable. It appears to us likely in course of time that existing or new legislation will be required :

(*a*) to protect children deprived of normal home life,

(*b*) to establish childern's courts and appropriate social services in conjunction with the courts,

(*c*) to regulate the establishment and organisation of orphanages and other institutions for the residential care of children,

(*d*) to prohibit children from begging on their own behalf or on behalf of instituttions,

(*e*) to give local authorities power to acquire land for play-grounds and other recreational purposes,

(*f*) to give local authorities powers to provide for the social well-being of residents in new housing estates as well as to ensure the observance of sanitary conditions, and

(*g*) to regulate the use of " *waqf* " and other charitable funds.

125. Social legislation should be framed only in the light of careful examination of what is required and of what can be enforced. Immediately it appears to us necessary only to ensure that the Central Government, Provincial Governments and local authorities have wide powers to spend public money on all forms of social welfare, training and research, either directly, through other statutory agencies, or by grants to voluntary societies.

126. The following Table summarises our estimate of the direct cost to government agencies of the social welfare Programme we recommend. The costs borne by local self-government bodies are not included.

TABLE 1

*Summary of public expenditure on the proposed social welfare programme, 1955—60*

(Million rupees)

| 1955-56 | 1956-57 | 1957-58 | 1958-59 | 1959-60 | Total |
|---|---|---|---|---|---|
| 1·14 | 6·25 | 6·67 | 8·83 | 9·62 | 32·51 |

## TABLE 2

*Summary of recurring and non-recurring expenditure by government agencies on social welfare programme,* 1955—60

(Million rupees)

| | | Total |
|---|---|---|
| Training : | | |
| University courses ... ... ... ... ... ... | 1·92 | |
| In-service and short-term courses ... ... ... ... ... | 1·1 | 3·02 |
| Administration : | | |
| Central ... ... ... ... ... ... ... ... | 1·62 | |
| Provinces ... ... ... ... ... ... ... ... | 1·31 | 2·93 |
| Research : | | |
| Government ... ... ... ... ... ... ... | ·56 | |
| Peshawar University ... ... ... ... ... ... ... | ·50 | 1·06 |
| Field Operations : | | |
| Urban community development projects ... ... ... ... | 12·28 | |
| Remedial establishments ... ... ... ... ... ... | 13·22 | 25·50 |
| Total | | 32·51 |

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*Lahore* :—
Messrs. All-Pakistan Legal Decision, 35, Nabha Road.
Messrs. A. M. John & Co., Katchery Road, P. O. No. 297.
Messrs. Book Centre, Lakshmi Mansion (Opp. Regal Cinema), 49, The Mall.
The Editor, Punjab Marketing Weekly, Mumtaz House, Khawaja Dil Muhammad Road.
Messrs. Ferozsons, The Mall.

Messrs. Hamid Noorani & Co., 59, Flaming Road, P. O. No. 473.
Messrs. Manzoor & Co. (Pakistan), Ltd., 6, The Mall.
Messrs. Mirza Book Agency, 9A, Shah Alam Market.
Messrs. Nawa-i-Waqt Publication Ltd.
Premier Book House, 4|5, Katchery Road, Near Anar-Kali.
Messrs. The Publishers United Ltd., 176, Anarkali.
Messrs. The Punjab Religious Book Society, Anarkali.
Messrs. The Royal Trading Agency, Gulab Manzil, Shah Alam Market.

*Peshawar* :—
Messrs. Ferozsons, 35, The Mall.

*Rawalpindi* :—
Messrs. Kutub Book Sellers & News Agents, Edwardes Road.
Messrs. The London Book Company.

*Hyderabad* :—
Messrs. Ameer Brothers, Hirabad.
Messrs. Educational Book Depot, Stationers & Booksellers, School Road.
Messrs. The Allies Stores, Jail Road, Near Tower.

*Multan City* :—
Messrs. The Multan Chamber of Commerce.

*Quetta* :—
Messrs. Aligarh Book Stall, Mission Road.

*Lyallpur* :—
Messrs. Danishmand & Co., Karkhana Bazar.
Messrs. International Agency, Gujar Basti.

*Sialkot Cantt.* :—
Mr. K. A. Baker, Prop., Baker Electric Press, Publishers & Law Booksellers, Baker Lodge.

*Sialkot City* :—
Messrs. Mallik & Sons, Commercial Building, Railway Road.
Messrs. Shah & Sons, Book-sellers & Publishers.

*Sukkur* :—
Messrs. The Ajaib Stores, Frere Road.
Messrs. Gul Book Depot, Neemji Slope.
Messrs. N. M. Qureshi & Co., Post Box No. 33, Shahi Bazar.
Mr. Umer Hussain, Book-seller & Newspaper Agent, Wallace Ganj.

*Larkana* :—
Messrs. Mujahid Stationery Mart & Book-seller, Bunder Road.

## II.—FOREIGN.

AFGHANISTAN :—The Ambassador of Pakistan, Kabul c|o Post Master, Peshawar.
AUSTRALIA :—The High Commissioner for Pakistan in Australia, Dalton House, 115 Pit Street, Sydney.
BURMA :—The Ambassador of Pakistan, Rander House, Phayree Street, Rangoon.
CANADA :—The High Commissioner for Pakistan, 499 Wilbord Street, Ottawa.
EGYPT :—The Ambassador of Pakistan, Pakistan House, 11, Sharia Hodel, Laban, Garden City, Cairo.
FRANCE :—The Ambassador of Pakistan, 18, Rue Loard Byron, Paris.
INDIA :—The High Commissioner for Pakistan, 8-B, Hardinge Avenue, New Delhi.
The Deputy High Commissioner for Pakistan in India, Calcutta.
INDONESIA :—The Ambassador of Pakistan, 15, Dialan Tanku Umar, Djakarta.
IRAN :—The Ambassador of Pakistan, Khiaban Takhte Jamshed Kashi No. 276, Tehran.
IRAQ :—The Ambassador of Pakistan, Wazirya, Baghdad.
ITALY :—The Minister of Pakistan, 15, Via Guiseppe Mangili, Rome.
NETHERLANDS :—The Ambassador of Pakistan, Plien 1813, No. 3, The Hague.
SAUDI ARABIA :—The Ambassador of Pakistan, Jedda.
SYRIA, LEBANON AND JORDAN :—The Minister of Pakistan, Abu Roumanch, Damascus.
TURKEY :—The Ambassador of Pakistan, 41, Karanfil Sokaka, Yanshehir, Ankara.
UNITED KINGDOM :—The High Commissioner for Pakistan, 34|36, Lowndes Square, London, S.W. 1.
U. S. A. :—The Ambassador of Pakistan, 2201-R Street, North-west, Washington D. C.
U. S. S. R. :—The Ambassador of Pakistan, 17, Sadove Kudrinskava Street, Moscow.